



**U.S. Army  
Environmental  
Center**


# **Environmental Baseline Survey**

## **Volume I of II**

### **Military Ocean Terminal, Bayonne Bayonne, New Jersey**

January 1997  
Contract No. DACA31-94-D-0062  
Delivery Order No. 0001  
ELIN A013

Prepared for:  
Commander  
U.S. Army Environmental Center  
Aberdeen Proving Ground, Maryland 21010-5401

Prepared by:  
 ecology and environment, inc.  
1700 North Moore Street  
Arlington, Virginia 22209

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## Executive Summary

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In March 1995, the Base Realignment and Closure (BRAC) Commission submitted its recommendation to close the Military Ocean Terminal, Bayonne (MOTBY), located in Bayonne, New Jersey. Under the Community Environmental Response Facilitation Act (CERFA), the Department of the Army is required to "expeditiously identify real property that offers the greatest opportunity for reuse and redevelopment" at closing facilities such as MOTBY. The first step in identifying such property is determining the location of real property where no Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulated hazardous substances or petroleum or their derivatives were stored for one year or more, known to have been released, or disposed of.

To collect and evaluate the information needed to determine the environmental condition of the property under CERFA, the United States Army Environmental Center (USAEC) tasked Ecology and Environment, Inc. (E & E) to conduct an Environmental Baseline Survey (EBS) of MOTBY under Contract No. DACA31-94-D-0062, Delivery Order No. 0001. The purpose of the EBS is to determine the presence or likely presence of any hazardous substance or any petroleum product or its derivatives on the real property, as well as the presence of hazards normally disclosed during property transfer, including asbestos, lead based paint, and radon. Data collection for the EBS included a detailed search of archives and records comprising more than 80,000 pages of text, reviews of title documents, evaluation of aerial photographs and historical maps, site visits, evaluation of adjacent properties, and interviews with installation personnel. Since the EBS covers the entire MOTBY facility, it became necessary to subdivide the facility into manageable reporting units. This effort resulted in 82 individual study areas that collectively comprise MOTBY.

In general, study areas were based on lot and building designations, however, some of the areas at the facility are not clearly delineated by facility maps and E & E developed appropriate identifiers.

The study areas were evaluated using seven categories for classification (see Table ES-1). Study areas (or defined portions of study areas) with the CERFA categories of 1

through 4 should be considered eligible for transfer pending approval by the Army and the State of New Jersey. Property with CERFA categories 5 through 7 are not considered eligible for transfer at this time. Properties in all seven CERFA categories are eligible for lease.

The results of this evaluation are tempered by some larger facility-wide environmental concerns that make all of the MOTBY property a CERFA category 7. MOTBY has been built on a man-made peninsula, developed out of hydraulic fill from potentially contaminated sediment from New York Harbor. MOTBY is also located in New York Harbor, an area known to suffer extensive pollution (resulting in contaminated water, sediment, and soil from air deposition). MOTBY also possesses an extensive sanitary sewer and drain system that is a potential pathway for migration of contaminants from several known and other potential discharges during 57 years of operations. These concerns mean the entire installation, including the tidal lands, is categorized as a CERFA category 7 property, since insufficient information is currently available to characterize the impact of these concerns. It is recommended that these concerns be given a priority in future investigations.

In order to provide more site-specific information, a secondary category has been assigned to each study area. This is independent of the facility-wide concerns. The secondary categorization effort indicates a range of environmental conditions at MOTBY. The results do not indicate a clear pattern applicable to large areas of the facility, although in general the results do reflect the heavier use of the central and eastern portions of the facility for activities with associated environmental concerns. However, several areas on the western portion of the facility also have significant (category 5 and 6) identified environmental concerns. Table ES-2 provides a list of areas with specific secondary category property. Table ES-3 provides a summary of each study area which lists the present facilities, the size of the study area in acres, the secondary categorization for the study area, and the rationalization for the assigned category. In Section 6 of the EBS report, Figures 6-1 and 6-2 present maps of MOTBY which indicate the official CERFA and the secondary categories assigned to each Study Area, respectively.

Despite an effort to collect as much information as possible, it is inevitable that some information about environmental concerns identified in the EBS is lacking. Therefore, categorization assumptions were conservative in nature, i.e., assuming items to be an environmental concern unless clearly indicated otherwise.

The purpose of the EBS is to establish a baseline of environmental conditions present at MOTBY, and thus future investigations or remedial efforts that may be required are not addressed in this document. Rather, the BRAC Closure Team (BCT) will use the findings of

the EBS as the basis for developing a BRAC Cleanup Plan (BCP) which will propose further action necessary to address identified concerns and establish schedules for the accomplishment of these tasks. Questions regarding the status of the BCP and/or future investigations or remedial work should be directed to the MOTBY BRAC Environmental Coordinator (BEC).

Table ES-1		
CERFA CATEGORIZATION SCHEME USED FOR THE EBS		
CERFA Category	Environmental Condition of Property	CERCLA Notification Requirements
1	Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	No notification required; can be identified under CERCLA 120(h)(4) as "CERFA-uncontaminated"
	Areas where no evidence exists for the release or disposal of hazardous substances or petroleum products, or migration from adjacent areas. The parcel, however has historically been used to store less than reportable quantities of hazardous substances (as defined in 40 CFR 302.4), or 600 or fewer gallons of petroleum products.	No notification required.
2	Areas where only storage of more than reportable quantities of hazardous substances or 600 gallons of petroleum products has occurred, but storage has occurred for less than 1 year (no release, disposal, or migration from adjacent areas).	No notification required.
	Areas where only storage of more than reportable quantities of hazardous substances or more than 600 gallons of petroleum products has occurred, and storage has occurred for more than 1 year (no release, disposal or migration from adjacent areas).	Notification of storage, release, or disposal as prescribed in CERCLA 120(h) (1) for contracts for sale and (3) for deeds.
3	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.	
4	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred and all remedial actions necessary to protect human health and the environment have been taken.	
5	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred and removal, and/or remedial actions, are underway, but all required remedial actions have not yet been taken.	Not eligible for transfer by deed.
6	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	
7	Areas that are unevaluated or require additional evaluation.	

<b>Table ES-2</b>  <b>STUDY AREAS WITH SECONDARY CATEGORY PROPERTY</b> <b>(All parcels are officially CERFA category 7 pending investigation of facility-wide concerns)</b>		
<b>Category</b>	<b>Study Areas with Property in Category</b>	<b>Total Acreage</b>
1	All of 25, 62, 64, 71, 74, 84, 201, 236, and 237 Portions of 51, 55, 75, 83, and 94	53.68
2	None	--
3	None	--
4	All of 65 Portions of 61 and 72	10.04
5	All of 11, 14, 31, 44, 45, 203, 204, and the LRP Portions of 4, 35, 53, 55, 73, 85, 91, 100N, 101, 100S, 222, LF, and GBV	91.13
6	All of 12, 13, 23, 32, 33, 63, 103, and NY4 Portions of 35, 61, and NY5	228.92
7	All of 1, 2, 3, 15, 22, 24, 34, 41, 42, 43, 52, 54, 82, 83, 92, 93, 95, 100DD, 102, 108, 202, 205, 212, 221, 230, 232, 234, 235, RCY, FILL, NY1, and NY3 Portions of 4, 53, 72, 75, 85, 91, 100N, 100P, 100S, 101, 222, GBV, LF, FILL, and NY5	294.21
<b>TOTAL</b>		<b>677.98</b>

Note: The total acreage included in the designated study areas is based on EBS mapping which was based on the most recent facility map. This total area has not yet been reconciled with the 722 acres identified in the deed description. The likely area of discrepancy is in the water boundaries.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS****(All parcels are officially CERFA category 7  
pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
1	1.79	1B, 1C, 1D, 1E, 1F, 1G	7	This area was assigned category 7 because of a history of discharges and disposal directly to the sanitary sewer from a variety of sources such as the photolabs. This disposal could have impacted the sewage treatment plant facilities. More information is needed to further characterize the area.
2	0.62	None	7	This area was assigned category 7 because of the possibility of migration from adjacent sites. The area is adjacent to Study Areas 103, 12, and 13 which were assigned category 6.
3	1.05	1A, 106	7	This area was assigned category 7 because of a history of disposal to the sanitary sewer which may have impacted the sump pump and because of the possibility of migration from Study Areas 103, 12, and 13.
4	2.65	None	5 (1.18 acres), 7 (1.47 acres)	This area was assigned category 5 around former Building 4 because of available information on uncontrolled former storage practices. Even though the waste and building have been removed, no confirmatory sampling data has been located. The north bulkhead area was assigned category 7 because of the unknown potential for contamination from a former preservation tank and sandblasting residue found on the ground.
11	3.11	None	5	This area was assigned category 5 because Building 11 was formerly a pesticide storage building. Although the building has been removed, no confirmatory sampling data exists.
12	4.68	12	6	This area was assigned category 6 because of uncontrolled storage of drums in the alcove between Buildings 12 and 22. The drums have been removed but the area has not been characterized. Former pesticide storage in this area has also not been characterized.
13	5.22	13	6	This area was assigned category 6 because of former drum storage on the south side of the building. The drums have been removed, but the area has not been characterized. The possibility for contaminant migration from adjacent areas caused the entire area to be categorized equally.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
**pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
14	5.16	14	5	This area was assigned category 5 due to the former large-scale storage of hazardous waste in the late 1980s. Although the building inside area has been remediated and the building fully renovated, no subsurface confirmatory sampling data was located and subsurface sampling may not have been conducted.
15	3.7	15	7	This area was assigned category 7 because of concerns regarding former petroleum storage on the west side, near Buildings 15A and 15B. The only concern for the east side is the potential for migration from adjacent areas.
22	4.58	22, 22A	7	This area was assigned category 7 because of former drum storage in the alcove between Buildings 12 and 22 and a history of photo discharges to the sanitary sewer at the Federal Archive Center Microfilm Laboratory.
23	4.98	23	6	This area was assigned category 6 because of the need for environmental characterization due to the extensive use of the building for hazardous material storage over the past 54 years.
24	5.22	24	7	This area was assigned category 7 because the possibility of migration from Area 23 is uncharacterized.
25	3.99	25	1	This area was assigned category 1 because no environmental concerns were identified and the possibility of migration as a result of environmental concerns from adjacent areas is considered low.
31	7.24	None	5	This area was assigned category 5 because environmental sampling was not performed after the building was demolished. The concerns are former pesticide storage in the building, and the historic storage of explosives in 1939-1941.
32	4.65	32	6	This area was assigned category 6 because there is a history of uncontrolled drum storage, and there was a rust removal/preservation room in the building.
33	4.78	33	6	This area was assigned category 6 because the area has an 8-year history of paint and oil storage and has not been characterized.
34	5.04	34	7	This area was assigned category 7 because of a concern regarding possible migration from Study Area 44.



Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

(All parcels are officially CERFA category 7  
pending investigation of facility-wide concerns)

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
35	5.03	35	5 (1.24 acres), 6 (3.80 acres)	Most of this area was assigned category 6 because of a history of uncharacterized hazardous material, hazardous waste, and petroleum storage and releases. However, the northwestern edge was assigned category 5 because of concerns regarding the fuel pipeline associated with Study Area 44 that have been partially remediated.
41	3.59	41	7	This area was assigned category 7 because no removal or confirmatory sampling was found concerning identified hazardous material storage.
42	4.6	42, 42B	7	This area was assigned category 7 because of the concerns raised about the possible sanitary discharges from film processing laboratories on 42-2, 42-4, 42-5, and 42-6 and residual concerns about hazmat and hazwaste handling at the former printing plant and solvent room on 42-5.
43	4.55	43	7	This area was assigned category 7 because of a battery spill at an unknown location somewhere in the building. The spill was cleaned up, but no confirmatory data could be found. There is also a concern over migration from adjacent areas, particularly Study Area 44.
44	5.14	44A, 44B, 44C, 44D, 44F	5	This area was assigned category 5 because of the extensive history of petroleum storage and releases that have been documented as impacting most of the area. Remedial activity has been conducted and is underway in regards to some of the identified concerns.
45	5.46	45	5	This area was assigned category 5 because of storage and disposal activities that have historically occurred here, some of which have been remediated. There is also a capped acid pit which was the subject of an RI investigation (RI site 5), and may require further investigation or remediation.
51	3.64	51	1 (2.85 acres), 6 (0.79 acres)	This area was assigned category 6 on the western side because of a history of petroleum storage and releases. The remainder of the area was assigned 1 because no environmental problems could be identified.
52	4.63	52A, 52B, 52D, 52E	7	This area was assigned category 7 because of potential discharges to the sanitary sewer at the X-ray laboratory in 52B and potential migration, in addition to potential migration from Area 53.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
**pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
53	4.55	53, 53A, 53B	5 (2.67 acres), 7 (1.88 acres)	The eastern portion of this area was assigned category 5 because investigations have indicated that further contamination is possible, but some removals have occurred. The western half of the study area was assigned category 7 because of the potential for contaminant migration from Study Area 63.
54	5.7	54	7	This area was assigned category 7 because of a migration concern from Study Areas 44 and 53.
55	5.79	None	1 (2.85 acres), 5 (2.95 acres)	This area was assigned category 5 on the eastern half because of a large PCB spill which was cleaned up, but for which no subsequent confirmatory sampling data could be found. No environmental concerns were identified for the western half which was assigned category 1.
61	2.38	61B, 61C, 61D, 61E	4 (1.10 acres), 6 (1.28 acres)	This area was assigned category 6 on the eastern half because confirmatory sampling needs to be collected for the substation. The western half was assigned category 4 because of an UST that has been removed.
62	5.23	62	1	This area was assigned category 1 because no environmental concerns were identified for the area and the likelihood of migration from adjoining study areas is low.
63	4.09	63	6	This area was assigned category 6 because it is a former storage area but the area has not been characterized.
64	5.29	64	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
65	5.4	None	4	This area was assigned category 4 because of remediated petroleum releases.
71	3.16	71A	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
72	4.43	72, 72A, 72B, 72C	4 (3.54 acres), 7 (0.89 acres)	This area was assigned category 4 around Building 72 because of a removed UST. The western end of the area was assigned category 7 because of uncharacterized hazardous material storage at Building 72A.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

(All parcels are officially CERFA category 7  
pending investigation of facility-wide concerns)

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
73	4.25	73, 73A	5 (1.04 acres), 7 (3.21 acres)	The western part of this area was assigned category 5 because of the former and present storage of hazardous material. The remainder of the area is categorized a 7 due to a potential for migration from the western area.
74	5.49	74	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
75	5.34	75	1 (4.59 acres), 7 (0.74 acres)	Most of this area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low. The exception is the western portion, which was assigned category 7 because of the possibility for contaminant migration from Study Area 85.
82	4.23	82	7	This area was assigned category 7 because of an unknown storage tank identified for the study area. If details for the tank could be identified, the study area would likely qualify for category 2.
83	3.97	83, 83A, 83B, 83C, 83D	7	This area was assigned category 7 because of concerns regarding ASTs and other historic general fueling concerns. The western part of the area qualified for category 7 because of potential of migration from the fueling area.
84	4.26	84	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
85	4.89	85	5 (3.86 acres), 7 (1.03 acres)	The former fire fighting area was assigned category 5 pending investigation of the 1989 kerosene spill, the former landing craft area, and resampling of the two USCG wells. The remainder of the area was categorized a 7 pending completion of the investigation of the fire training area.
RCY	41.39	Railroad Classification Yard, 201	7	This area was assigned category 7 because little information was located on historic activities, housekeeping, or other problems in the railroad classification yard and along the unloading platforms.

<p align="center"><b>Table ES-3</b></p> <p align="center"><b>SECONDARY CATEGORIZATION OF STUDY AREAS</b></p> <p align="center"><b>(All parcels are officially CERFA category 7 pending investigation of facility-wide concerns)</b></p>				
<b>Study Area</b>	<b>Area (acres)</b>	<b>Present Facilities within Study Area</b>	<b>Category</b>	<b>Secondary Category Rationalization</b>
91	2.63	91A, 91B, 91C, 91D, 91E	5 (1.73 acres), 7 (0.90 acres)	The eastern part of this area around the gas station was assigned category 5 because of the extensive contamination that was found during investigation and removal of the former underground storage tanks and the possibility for further contamination. The western part of the area was assigned category 7 because no information was located concerning the former paint storage building.
92	4.87	92, 92A, 92B, 92C	7	This area was assigned category 7 because of the potential for migration from adjoining Areas 91 and 203.
93	4.22	93	7	This area was assigned category 7 because of the possibility of historic use by DPDO and the potential for migration from the former DRMO yard in 203 and 204.
94	4.47	94	1 (3.05 acres), 7 (1.42 acres)	Most of this area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low. However, the western third of this area was assigned category 7 due to the potential for migration from the former DRMO yard in 203 and 204.
95	5.29	95	7	This area was assigned category 7 because of the potential for migration from adjoining Areas 203/204.
101	8.55	100, 101, 105	5 (1.69 acres), 7 (6.86 acres)	The Building 100 and 101 areas were assigned category 7 because of the numerous unknowns associated with historic activities at the various buildings. The area around Building 105 was assigned Category 5 in light of the ongoing remedial work at the site.
100N	9.13	None	5 (1.42 acres), 7 (7.71 acres)	This area was assigned category 5 along the very western edge because of USTs associated with B106, which are the subject of ongoing remedial effort. The rest of the study area was assigned category 7 because of unknown environmental implications associated with the Navy Test Area and Building 113.
102	4.48	102, 102A	7	This area was assigned category 7 because of migration concerns from adjoining areas 4, 100N, and 103.
103	2.33	103, 104	6	This area was assigned category 6 because of former uncontrolled indoor and outdoor storage and the lack of environmental investigation information for the study area.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
**pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
108	4.5	108, 110, 111	7	This area was assigned category 7 because of the B108 substation; a history of paint and oil storage at B110; and current hazardous waste storage at B111.
100DD	9.36	122, 132	7	This area was assigned category 7 because of data gaps concerning sludge testing and the pumpwell sump. Note: flushing of the dry dock is the reason Study Area NY3 was assigned category 7 due to the potential for residual contaminated sediment outside the caisson.
100S	7.08	136	5 (1.73 acres), 7 (5.35 acres)	This area was assigned category 5 along the eastern edge because while an investigation of the area has been conducted, further work is likely to be needed around the B130 and B134 tanks. The western edge is considered a 7, because of the potential for migration from either the tanks or Study Area 108.
100P	2.77	None	1 (1.37 acres), 7 (1.40 acres)	This area was assigned category 7 along the northern edge because a concern exists about possible migration from 103. The southern portion has no environmental concerns, and was assigned category 1.
201	2.46	201A	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
202	4.6	202	7	This area was assigned category 7 because of migration concerns from the former DRMO area (Lots 203, 204).
203	4.25	203, 222A	5	This area was assigned category 5 because it is the subject of ongoing remedial effort as part of RI site 9.
204	4.59	204, 204A, 204B	5	This area was assigned category 5 because it is the subject of ongoing remedial effort as part of RI sites 4 and 9.
205	6.25	205	7	This area was assigned category 7 because of the potential for migration from the landfill and Study Areas 203 and 204. There are also uncharacterized concerns associated with former burning trenches, a burning bin and the tepee incinerator.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
**pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
211	2.48	211A	1 (1.26 acres), 7 (1.22 acres)	This area was assigned category 1 on the eastern side because the only environmental concern identified was a 275 gallon aboveground storage tank for fuel oil that is located within an enclosure. This area was assigned category 7 on the western side because of the potential for migration from adjoining Area 222.
212	4.41	212	7	This area was assigned category 7 because of migration concerns from RI site 2 (lot 222); RI site 1 (landfill); and RI sites 4 and 9 (DRMO lots 203 and 204).
LF	29.22	LF	5 (18.25 acres), 7 (10.97 acres)	The identified landfill area was assigned category 5 because of the ongoing remedial effort of this site as RI site 1. A part of the area was assigned category 7 because of the unknown potential for migration of contamination from the landfill.
221	6.27	221, 221A, 221B, 221C	7	This area was assigned category 7 due to a NJDEP concern regarding potential aerial fallout from former burning activities at LOT 222.
222	4.33	None	5 (1.90 acres), 7 (2.43 acres)	The identified former navy storage area was assigned category 5 because of the ongoing remedial effort at the site as RI site 2. The remainder of the area was assigned a 7 because of a potential for migration from the storage area or the landfill.
LRP	14.2	Main Gate Area, 84A, 228A-F, 229H, 229J	5	The area was assigned category 5 because investigations associated with tank removals and the NJ Transit construction effort have indicated the possibility of groundwater and subsurface soil contamination. Off-site investigation by NJDOT has also indicated the potential for migration of contamination from off site to on site and/or on site to off site. An additional concern is the possible discharge of photo wastes to the sanitary sewer. Some remedial efforts (UST removals) have been conducted at the site.
GBV	11.75	251AC, 252AB, 253AB, 254AB, 229A-B, 229E-F	5 (2.32 acres), 7 (9.43 acres)	The area around 254AB was assigned category 5 because of a history of releases and contamination concerns related to the removed USTs, some of which have been remediated. All other areas were assigned category 7 because of the possibility for contaminant migration from adjoining areas and off-site property.
230	0.79	None	7	This area was assigned category 7 because of a report of contaminated backfill used in the vicinity of the 40th St. Gate and potential for migration from Highway 169.

Table ES-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
**pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
232	5.67	232, 232A	7	This area was assigned category 7 because of a concern that landfill activities in the LF study area may not be fully delineated or characterized.
234	2.03	234A	7	This area was assigned category 7 because of the potential for migration of contamination from Route 169.
235	2.56	235A, 235B, 235C	7	This area was assigned category 7 because of the potential for migration from Route 169.
236	4.85	None	1	This area was assigned category 1 because the only environmental concern identified was a septic tank and line used for domestic sewage from the residence at 234A and the former trailers (236A-D) and because the potential for migration from adjoining sites is considered low.
237	2.98	NYCOE Trailers	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
FILL	18.9	None	7	This area was assigned category 7, pending final delineation and characterization of the landfill. An additional concern is the proximity of this study area to the burning trenches, burning bin, and the tepee incinerator in 205.
NY1	41.74	86A - C, North Shoreline	7	This area was assigned category 7 because of migration concerns from the Former Fire Training Area (RI site 8), the burning trenches, the landfill (RI site 1), and DRMO (RI sites 4, 9).
NY2	64.46	North Berths	5	This area was assigned category 5 because of numerous spills for which spill containment and remediation activities occurred, but for which complete characterization of residual contamination has not been conducted.
NY3	4.12	East Berths	7	This area was assigned category 7 because dry dock sediments potentially containing unknown contaminants were flushed, accidentally and intentionally, into this area. No characterization of this area for this concern has been conducted.
NY4	55.75	South Berths	6	This area was assigned category 6 because at least one spill was recorded at the south berths. Other spills are likely over the 57 years of use. There is also a concern of contamination as a result of spills at Constable Hook.

<b>Table ES-3</b>  <b>SECONDARY CATEGORIZATION OF STUDY AREAS</b> <b>(All parcels are officially CERFA category 7</b> <b>pending investigation of facility-wide concerns)</b>				
<b>Study Area</b>	<b>Area (acres)</b>	<b>Present Facilities within Study Area</b>	<b>Category</b>	<b>Secondary Category Rationalization</b>
NY5	84.68	South Shoreline	6 (72.11 acres), 7 (12.57 acres)	The tidal portion of this study area was assigned category 6 because of the potential for contaminant migration from the Bayonne Landfill and the potential residual impact of recorded spills at Constable Hook. The onshore areas were assigned category 7 because of the potential for migration from the RCY.

Note: The total acreage included in these study areas is 677.98 acres, based on EBS mapping. This information has not yet been reconciled with the area of 722 acres found in the deed descriptions. The likely discrepancy is in the water boundaries of MOTBY.



## 1.1 Purpose

As part of Delivery Order No. 0001 under Contract No. DACA31-94-D-0062, the United States Army Environmental Center (USAEC) tasked Ecology and Environment, Inc. (E & E) to conduct an environmental baseline survey (EBS) and prepare an EBS report for the Military Ocean Terminal in Bayonne, New Jersey (MOTBY) (Figure 1-1). The EBS effort is in support of the Base Realignment and Closure (BRAC) Commission's March 1995 recommendation to close MOTBY by the year 2001.

The EBS is developed to broadly document the physical condition of MOTBY, with particular emphasis on land use practices, specifically as relating to storage, use, and disposal of hazardous substances and petroleum products and their derivatives, throughout the history of the installation. While the EBS takes account of previous environmental investigations and remediation efforts at the installation, it does not in any way evaluate them or attempt to integrate the findings. A major purpose of the EBS is to establish a baseline for use by the Army in making decisions concerning real property transactions before and following the scheduled closure of MOTBY.

The EBS study area is a facility that was originally constructed as a reclaimed land port terminal by the City of Bayonne in 1939. The port terminal included both land and surrounding water for ship berthing. The peninsula is "made land" consisting of fill materials dredged from the bottom of New York harbor. The peninsula was constructed in an area already heavily industrialized, particularly with the presence of petrochemical storage and refining facilities that had been operating since the mid- to late 1800s. As originally designed, the land portion of the Bayonne Port Terminal was shaped like a spatula, with a narrow road and rail causeway extending out from the mainland into New York Bay for approximately 1 mile where it connected to a rectangular shaped berthing and transshipment area approximately 1 mile long and approximately 1/3 mile wide. The Bayonne Port Terminal contained one warehouse and equipment for loading and offloading ships. In 1941,

the United States Government purchased the Bayonne Port Terminal to secure additional berthing facilities in the New York harbor area for the Department of the Navy. During its tenancy, the Navy expanded the land portion of the facility, filling out the area along the causeway to the peninsula's current, rectangular shape. The Navy also constructed numerous additional warehouses and support buildings, and expanded the infrastructure of the facility. On July 1, 1967, the facility was transferred to the United States Army, which has used the terminal ever since as a supply depot to ship equipment and materials for operations along the eastern coast of the United States and to support the European, African, Mediterranean, and South American theaters of operations.

#### **1.1.1 Purpose of the EBS**

Department of Defense (DoD) policy requires that an EBS be prepared before any property can be sold, leased, transferred, or acquired. The EBS serves two primary functions: as a management tool to support environmental decisions and related management actions, and to meet the Army's obligations under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 United States Code Section 9620(h)(1), as amended by the Community Environmental Response Facilitation Act (CERFA), which requires the early identification of uncontaminated property to expedite its lease or transfer to the public. The Army will use the EBS prepared on MOTBY to accomplish the following:

- Develop sufficient information to assess the health and safety risks on the property surveyed, and determine what actions are necessary to protect human health and the environment before a real property transaction occurs;
- Support decisions for Finding of Suitability to Lease/Finding of Suitability to Transfer (FOSL/FOST) and aid in determining lease or deed restrictions;
- Document uncontaminated property and obtain regulatory concurrence as required and defined under Section 120(h)(1) of CERCLA, of the type, quantity, and time frame of any storage, release, or disposal of hazardous substances or petroleum products or their derivatives on the property;
- Identify data gaps concerning environmental contamination;
- Monitor changes in property classification as a result of further research, environmental characterization, or remedial activities;

- Define potential environmental liabilities associated with real property transactions; and
- Aid in determining possible effects on property valuation resulting from any contamination/concerns identified.

### 1.1.2 Content of the EBS Report

To prepare the EBS report, E & E obtained information through a records search, interviews, and visual inspections. The records search involved reviewing available records from the Army, historical operations documents retained from the Navy's tenure at the facility (1941 to 1967) and documents obtained from other agencies (federal, state, and local). Research activities included reviewing environmental restoration and compliance reports, audits, surveys, and inspection reports; analyzing historical maps and aerial photographs; and reviewing recorded title documents for the property. Interviews with current and former employees and visual inspections of the base property and facilities were also conducted. The EBS also includes an evaluation of adjacent properties contiguous to or relatively near MOTBY that could pose environmental concerns and/or affect the subject property. The adjacent property evaluation performed for MOTBY included the identification of adjacent properties, a search of relevant federal and state databases, and a subsequent visual inspection of adjacent properties to the extent permitted by the owners or operators.

This EBS identifies as uncontaminated under CERCLA Section 120(h)(4) parcels of property even if some limited quantity of hazardous substances or petroleum products were stored, released, or disposed of, or in cases where the available information indicates that the storage, release, or disposal was associated with activities that would not be expected to pose a threat to human health or the environment. A discussion of guidance used in performing characterization is provided in Section 6. The following examples are provided as guidance in the United States Environmental Protection Agency's (EPA's) *Military Base Closures: Guidance on EPA Concurrence in the Identification of Uncontaminated Parcels under CERCLA 120(h)(4)*, April 14, 1994:

- **Housing.** In housing areas, it is likely that hazardous substances and petroleum products contained in heating oil and household products have been stored, released, disposed of; but it is unlikely that, in the absence of evidence of significant fuel spills, such materials would pose a threat to human health or the environment.
- **Stained Pavement.** There may be evidence of incidental releases of petroleum products on roadways and parking lots, but there is no indication that such releases pose a threat to human health or the environment.

- Pesticides. In the absence of evidence indicating a threat to human health or the environment (e.g., contamination of surface or groundwater, or proximity to sensitive habitats), the routine licensed application of pesticides should not disqualify a parcel under CERCLA Section 120(h)(4). If information concerning the use of the parcel indicates extensive application of pesticides, EPA may determine that the particular circumstances require that its concurrence be conditioned on further information concerning the nature and quantities of pesticides applied or the results of the confirmatory sampling to assure that the residual levels do not pose a threat to human health or the environment.

Several factors concerning MOTBY make a site-specific CERFA categorization of real property problematic due to a potential for underlying facility-wide contamination from several sources. MOTBY is located in New York Harbor, an area known to suffer extensive pollution and the facility has been built on a man-made peninsula, developed out of hydraulic fill from potentially contaminated sediment from the harbor. MOTBY also possesses an extensive storm and sanitary sewer and drain system that is a potential pathway for migration of contaminants from intentional and unintentional discharges during 57 years of operation. Thus, three facility-wide concerns mean that the entire facility is a CERFA category 7, pending investigation of these concerns.

1. **HYDRAULIC FILL:** Dredged material from New York Harbor was used to develop the MOTBY peninsula and it is unknown what contamination can be associated with the fill material, or where these contaminated fill areas may be located.
2. **DISCHARGES INTO THE SEWER SYSTEMS:** Documented discharges of untreated photo processing wastes into the sanitary sewer occurred prior to the mid-1980s. This activity may have occurred at up to eight locations in four study areas. There are also some unresolved discharge concerns regarding vehicle maintenance areas, oil water separators, and several other units of the facility.
3. **GENERALIZED POLLUTION OF NEW YORK HARBOR:** New York Harbor water and sediments have been impacted by historical and ongoing industrial activity. The impact of contaminant migration from New York Harbor on the MOTBY peninsula has not been characterized. Similarly, the impact on the harbor of groundwater underlying MOTBY has not been studied.

In order to provide site-specific information, all property at MOTBY was given a secondary category using the following CERFA categorization scheme:

- Category 1: Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas); or areas historically used to store less than reportable quantities of hazardous substances or 600 or fewer gallons of petroleum products, where no evidence exists for the release or disposal of hazardous substances or petroleum products or migration from adjacent areas.
- Category 2: Areas where only storage of more than reportable quantities of hazardous substances or 600 gallons of petroleum products has occurred (no release, disposal, or migration from adjacent areas):
- Category 3: Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.
- Category 4: Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred and all remedial actions necessary to protect human health and the environment have been taken.
- Category 5: Areas where storage, release, disposal and/or migration of hazardous substances or petroleum products has occurred and removal, and/or remedial actions, are underway, but all required remedial actions have not yet been taken.
- Category 6: Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.
- Category 7: Areas that are unevaluated or require additional evaluation.

The secondary categories were assigned to study areas to assist in the evaluation of parcels at MOTBY, but are not official CERFA categories, pending resolution of the facility-wide concerns. Property officially designated as in the first four CERFA categories would be suitable for transfer by deed. Property in the last three CERFA categories would be unsuitable for transfer by deed until all necessary actions have been taken and the property has been reclassified into one of the first four categories. Property in all seven categories is suitable for lease.

### 1.1.3 Data Gaps and Updates

Available information on the environmental condition of the MOTBY installation is included in this EBS. Where data gaps exist, they are identified in the EBS and further research, and/or sampling and analysis field efforts may be necessary to fill them. When

possible, the Army attempts to take action to fill the data gaps immediately, at the time they are identified, so that the EBS will be as complete and accurate as possible. Where it is not possible, the Army has several ongoing programs to identify and characterize environmental contamination and to determine the presence of hazardous substances that may be used to fill data gaps. In all cases, actions to fill data gaps will be accelerated to the extent possible to support the property disposal schedule. As efforts to characterize or remediate areas at MOTBY are completed, this EBS may be updated periodically to reflect the latest information.

#### **1.1.4 Relationship to Other Programs and Documents**

Disposal and reuse planning and corrective actions are inherently linked with environmental investigation and compliance programs because federal property transfers to nonfederal parties are governed by CERCLA Section 120(h)(3)(B)(i), and residual contamination may remain on some properties following completion of the remedial action, thereby restricting future uses of the property. CERCLA requires that deeds for federal transfer of contaminated property contain a covenant in which all remedial actions necessary to protect human health and the environment have been taken. This means that any required remedial and/or removal actions must be selected and implemented before transfer to private parties can occur. This applies to actions required at Installation Restoration Program (IRP) sites and any other areas of contamination.

Before the recommendation to close MOTBY was announced in March 1995, several programs operated concurrently to handle various aspects of environmental operations and cleanup. Principal environmental programs included the IRP, for which 10 sites were evaluated during a two-phase study in 1988 and 1994; non-IRP assessment and remediation of underground storage tanks; a 1980 United States Army Environmental Hygiene Agency (USAEHA) facility assessment, and MOTBY-led assessments and remediation for polychlorinated biphenyls (PCBs) and asbestos. As of February 1996, the Defense Site Environmental Restoration Tracking System (DSERTS) included 47 sites at MOTBY. Table K-1 in Appendix K provides a cross-reference of the DSERTS sites and their inclusion in the EBS.

The comprehensive plan for the environmental restoration of closing Army installations is laid out in a Base Realignment and Closure (BRAC) Cleanup Plan (BCP) prepared for each installation. The plan for filling data gaps identified in this EBS will be incorporated into the BCP for MOTBY, which will also be updated periodically as new requirements are identified and actions are completed.

The Army will also prepare an Environmental Impact Statement (EIS) for the disposal and reuse of MOTBY. Although the EIS will contain some of the same information presented in this EBS the two documents serve a different purpose. The EIS will include an analysis of the potential impacts related to the disposal and reuse of the MOTBY property, while this EBS documents the environmental condition of the property related to the storage, release or disposal of hazardous substances.

## **1.2 Boundaries of the Survey Area**

The findings of this EBS are based on a review of information available for MOTBY and an inspection of the MOTBY property. In addition, properties identified as adjacent to MOTBY that could potentially impact MOTBY are also evaluated.

MOTBY is located in the City of Bayonne, in Hudson County, New Jersey and is identified as Block 404, Lot 1 on the City of Bayonne Tax Map. The facility is on a man-made peninsula which is approximately 1/3 mile wide and extends approximately 2 miles into Upper New York Bay. The amount of acreage depicted on the legal description of the property is 722 acres (Ref. 301).

According to the deed for the property, the Secretary of the Navy purchased the property through a series of eminent domain takings from 1941 through 1943. The 1941 transaction included the land portions of the port terminal and causeway and totalled approximately 153 acres. The 1943 transaction divided the property into two parcels. The total acreage for the 1943 transaction included the land from the 1941 transaction and effectively extended the property boundary to include the surrounding water. The EBS base map was developed using the most recent facility maps which only enclose 678 acres. The discrepancy with the deed acreage is probably in the water areas of MOTBY.

## **1.3 Organization of Report**

This EBS includes 9 sections and 11 appendices. This introductory section, Section 1, is followed by an explanation of the methodology used to conduct the survey in Section 2, and the history, land use, and environmental setting of MOTBY in Section 3. Section 4 provides a brief discussion of the environmental findings which are detailed in inventory tables found in the appendices. A discussion of the adjacent properties is presented in Section 5 and the conclusions of the EBS are presented in Section 6. The remaining sections, Sections 7, 8, and 9, provide the certification and list of preparers, glossary of terms and acronyms, and lists of references consulted and people interviewed. Appendix A

provides a summary of environmental concerns by study area and facility; Appendices B through H contain the details of the environmental findings in the form of inventories; Appendix I contains information supplemental to Section 5, Adjacent Properties; Appendix J contains examples of the visual site inspection forms; and Appendix K contains a cross-reference of the DSERTS sites.





The methodology developed and used to conduct this facility-wide EBS of MOTBY is described in this section. Section 2.1 outlines the approach used to acquire information. Specific environmental factors considered during the EBS development, primary sources of information used, and issues remaining are discussed in Section 2.2. The process used to inventory and track potential environmental concerns identified through the EBS process are described in Section 2.3.

The MOTBY peninsula was developed with hydraulic fill in the late 1930s, and was only used for a little over two years by the City of Bayonne before being ceded to the United States Government for use as a military installation. As a result, it has been possible to limit the land use investigation of the facility to the years of its physical existence.

The research for this EBS was accomplished while MOTBY was still active, soon after the facility had been identified for closure under BRAC. Record searches, interviews, and site visits were conducted in the context of the operating facility and therefore reflect preclosure use of MOTBY. The active state of the facility means that conditions observed during the EBS may change before final closure of the facility.

## **2.1 Approach and Rationale**

Information was gathered for the EBS in a series of efforts, calculated to identify environmental issues at MOTBY, develop a historical and physical understanding of operations and activities at the facility, and seek answers for the evolving list of data gaps maintained by the research group. Data was collected, sorted, analyzed, and verified to the extent possible, before conclusions were drawn as to actual operations conducted between 1939 and 1996 at different locations in MOTBY with a potential for environmental impact.

Although some environmental assessment activities had been conducted at specific locations or for specific environmental activities and concerns within the facility, no comprehensive facility-wide environmental review or categorization effort could be identified,

whether for a permit application or to meet any other reporting requirements. As a result, it became necessary to develop as much information for the operational existence of the installation as possible through the existing original records, which were all made available.

Three major data gathering efforts were conducted by research teams at MOTBY and in Bayonne, New Jersey. The first research effort focused on developing an understanding of how the facility had operated over time and whether there had been any distinct environmental problems or issues, resolved or not, already identified by the facility, city, state, or other individuals. Existing reports and studies of environmental conditions at MOTBY were carefully analyzed to help provide an initial understanding of the facility. Other sources of information, such as the New Jersey Department of Environmental Protection (NJDEP), the Bayonne Department of Health, and EPA Region II were also contacted for file information.

The time between research efforts was used to review and consolidate collected information, identify data gaps, and build questionnaires. The information collected was roughly divided into several general subject areas: land use over the years, hazardous material storage and disposal, hazardous waste storage and disposal, petroleum related storage and releases, wastewater treatment, other environmental concerns, and disclosure item findings. Once divided into these general subject areas, the information was reviewed for entry into subject specific inventories. When discrepancies were identified in descriptions or accounts of activities, or when unsubstantiated allegations were identified, these were noted for follow-up confirmation.

The second research effort focused both on closing data gaps through interviews and additional targeted research, and on conducting very specific facility visits to verify information developed through data review. The final data gathering effort was limited to gathering information on adjacent properties.

The distinct periods of use for the facility - when under city ownership, when managed by the Navy, and subsequently when managed by the Army - increased the scope of effort required to develop an understanding of uses, disposal practices, and accidents associated with each study area for each period. However, through maps, photographs, historic texts and archival documents, it became possible to create a working framework of operations over time at MOTBY.

The information gathered throughout the EBS process was collated into subject-specific inventories, and then entered into site maps in a series of layers showing activities of possible concern during the years at the facility. This picture of environmental conditions at MOTBY could then be used to classify the use-defined study areas into one of the seven defined environmental condition categories and to identify the remaining data gaps.

### 2.1.1 Document Review

First, during an initial 2 week site visit, a comprehensive review of all records held by MOTBY's Environmental Management Office (EMO) was completed. A list of files reviewed is included in Section 9. They included, *inter alia*, files providing information on the status of underground and aboveground storage tanks (USTs and ASTs) at MOTBY; the Dames and Moore Phase I (1989) and Phase II (1994) Remedial Investigation (RI) report; a 1982 United States Army Toxic and Hazardous Materials Agency (USATHAMA) Installation Assessment; a number of USAEHA studies; spill response files; NJDEP Notices of Violation; permit registrations; basewide environmental surveys (asbestos, lead-based paint, radon); and other files relating to environmental management at the facility. The bulk of the available environmental information was limited to the 1990s, with a few reference documents from the 1980s. Photographs taken to accompany a base-wide environmental review in 1990 were also provided by the EMO.

The MOTBY Facility Engineers' map vault yielded information about physical structures at the base over time. The map vault included a series of maps going back to the construction of the Terminal in 1939, presenting an annual review of buildings at the facility; a series of maps handed over by the Navy to the Army when command was transferred; and all proposed and as-built construction and land use maps developed for the facility. The contents of eight metal hanging map file bins and two map drawers, which were clearly referenced in accompanying indexes, were made available for review.

Real property records were read and changes to structures, or to property use were noted. The records were maintained for each structure at the base, including demolished structures, providing building information and noting modifications. Current lease history was also reviewed to gain a better understanding of the current users of the facility.

Aerial and still photographs maintained by the base photographer were reviewed in order to develop a visual historic perspective of the facility. The base photographer had been involved with the facility since the 1950s, and had an excellent collection of aerial photographs, as well as photographs of activities on base. It was possible to build an aerial study of the base going back through 1939, with shots taken at least every five years since then.

Incident reports maintained by the facility fire department were read, and the incident logbooks maintained by the facility fire department were also reviewed for any noted hazmat spills.

The City of Bayonne Department of Health files on MOTBY and environmental incidents noted for the facility or its vicinity were reviewed. The City of Bayonne Fire Department provided incident response reports and incident notification forms for MOTBY

maintained on file. The Bayonne Public Library historic photographs and documents yielded additional information.

Archival records covering the early Navy period at MOTBY (1941-1966) were identified at the New York City Federal Archive Repository and were also reviewed. The boxes had been archived as the 3rd Naval District New York - Ordnance Office files, and District Engineer files; the New York Navy Yard - Command files; and Bayonne Terminal Command files.

The files maintained by the Hudson County Health Commission were reviewed inasmuch as these pertained to MOTBY or to associated environmental concerns in the adjoining areas. Much of the information found was related to spill incidents, accidents, and permit-related notifications. Additional file material was obtained from the United States Army Center for Health Promotion and Preventative Medicine (USACHPPM); the NJDEP, Division of Solid and Hazardous Waste and the Division of Responsible Party Site Remediation/Bureau of Communication and Support Services (Spill Reports); the EPA Region II Hazardous and Solid Waste Programs Branch in New York City and the EPA Region II Spill Prevention Containment and Countermeasures Program in Edison, New Jersey; and the Environmental Risk Imaging Service (Federal database review).

During the second site visit, the team revisited the map vault to confirm "as built" information supporting the location of activities within buildings, or in open storage areas. Military Traffic Management and Terminal Command (MTMTC) archives, (located on base in Building 92, 2nd floor), including command history and public information files, were reviewed for activities during the Navy/Army transition period (mid-1960s) through the early 1970s, which had been a major data gap.

### 2.1.2 Interviews

Concurrent with the first and second record review cycles, interviews were conducted with EMO personnel, the real property officer, the map custodian, and other individuals identified through the EMO.

As part of this effort, meetings were held with the City of Bayonne Department of Health officials, the Mayor of the City of Bayonne, and members of the City of Bayonne Fire Department.

Individuals who had been at the base for 30 to 45 years, working in several capacities, were made available for interviews, and were asked about additional data gaps or issues for which independent verification was being sought. Interviews were also conducted with respect to specific operating practices at the facility, such as pesticide storage,

management and application. Section 9 provides a listing of the individuals contacted and interviewed for the EBS.

### **2.1.3 Visual Site Inspections**

A second team conducted site visits, physically inspecting specific locations within each study area identified through the record search and interviews to have been the site of an activity or incident of potential environmental concern. A comprehensive facility walk through was not conducted at this time, in part because of the still active nature of the installation.

The information obtained through this effort was used to finalize the inventories and prepare the data thus collected for entry onto a series of map layers, each depicting a different type of activity or environmental concern by location across the facility. The results of this effort are described in Section 4 and are presented in Appendices B through H.

A separate study team was sent to Bayonne to map and evaluate properties adjacent to MOTBY. The results of this effort are described in Section 5, Adjacent Properties.

## **2.2 Environmental Factors**

A number of environmental factors were considered in the categorization of study areas at the facility. Since the installation is almost wholly created from man-made land, using hydraulic fill from New York Harbor, it has been assumed that, for the great majority of the base, no sensitive environments, sites of archaeological concern, or drinking water aquifers are to be found. The exceptions lie on the western end of the facility and are considered individually in the evaluation. These include a wetland and two buildings of potential historical interest. The key areas of concern focused on hazardous material and waste storage, disposal, and releases; petroleum and petroleum waste storage, disposal, and releases; wastewater treatment systems operated at MOTBY over time; pesticide use; infectious waste management; radioactive material storage/transfers; ordnance storage/transfers; and general land-use history, including housekeeping issues. Property transfer disclosure items were reviewed as well, so that summary findings are presented on asbestos, PCB-containing equipment, lead-based paint, radon, drinking water quality, air quality, and the general environmental permit status of the facility.

The information collected during the efforts described in Section 2.1 was evaluated in the context of each of these environmental factors, and appropriate data was entered into an inventory developed specifically for each factor. The source of the information derived, the

approximate dates of the concern, and any substantiating information found were noted. Remedial actions, if any, were also described. Using the data inventories, it was then possible to develop maps of areas of concern within each study area designated at MOTBY.

While every effort was made to be as comprehensive as possible, it is of course not possible to ensure that every spill or release was identified and documented. Before spill notification was required by law, incident reports were not always filed, and if notes were kept, they did not always provide details as to quantities involved or remedial actions undertaken. There is bound to be pervasive spillage at any industrial port facility, and more especially at one used to provision the armed forces of the United States in wars from the Second World War through the more recent Desert Shield efforts. However, it has been ascertained with some confidence, that no explosives (other than small arms ammunition), sophisticated weaponry, or other unusual or dangerous weapons or items for war were stored at MOTBY since August 1941. Such items, if shipped through the base, have always been kept in specially marked and guarded containers off base until ready for loading onto vessels, and have been loaded as part of the last consignment taken on board prior to ship departure to minimize holding time in New York Harbor.

Existing environmental studies were reviewed to the extent available and any information collected was double-checked both against source documents, through interviews, and with visual observations (either during the site walk over or in reviewing maps and aerial or other photographs). To the extent feasible, any questionable item was double, sometimes triple checked, and if confirmation could not be obtained, this is noted in the inventories or in the text.

The inventories have been provided in Appendices B through H, and have been mapped on Figures B-1 through H-1. A discussion of each inventory is provided in Section 4, Environmental Findings.

## **2.3 Establishing Data Recording Conventions**

### **2.3.1 Study Areas**

Figure 2-1 portrays the base divided into a series of study areas. This was accomplished for the purpose of inventory, categorization, and analysis of environmental factors at MOTBY; the evaluation of historical and preclosure land uses; and the referencing of findings discussed in this EBS. Delineation of the study areas was based on similarities in functional activities, or by anchoring the study area to one of the larger buildings at the facility. The arbitrary designation of study areas was used to facilitate presentation of data

collected during this EBS, and in no way represents a parcelization of land for the purpose of property transfers or transactions.

### **2.3.2 Item Numbers**

In developing the various incident inventories, each incident or activity reported was identified according to study area, facility number as available, and exclusive item number, referring only to a particular spill, release, disposal or storage activity. This was done in order to distinguish more easily between multiple activities at one building or in one study area.

### **2.3.3 Berth Numbers**

In conducting interviews and after completing research efforts it was determined that while the berths had been renamed at least 3 times during the history of the facility, and had changed in size accordingly, the most common current reference to berths used the terminology active in the middle period. This is the numbering system used throughout the report and in the report maps in order to ensure clarity for review, and reduce confusion.

### **2.3.4 Reference Filing**

In excess of 12,000 pages of text were collected during the research effort. A serially numbered filing system was developed to maintain documents, such that one file would contain several like documents, covering the same general topic. The reference files are listed in Section 9.

More than 100 maps were collected. They are also listed in Section 9 and have been referenced using consecutive numbers, beginning with 501. File number 502 however, includes a base map for almost every year of base operations since 1941.

Some 24 photographs were collected, and they too are listed in Section 9 and have been referenced using consecutive numbers, beginning with 701.

### **2.3.5 Terminology**

USAEHA has been used in the text to refer to the author of documents prepared by USACHPPM, prior to its name change. USATHAMA has been used in the text and in references to refer to the author of documents prepared by USAEC before its name change.

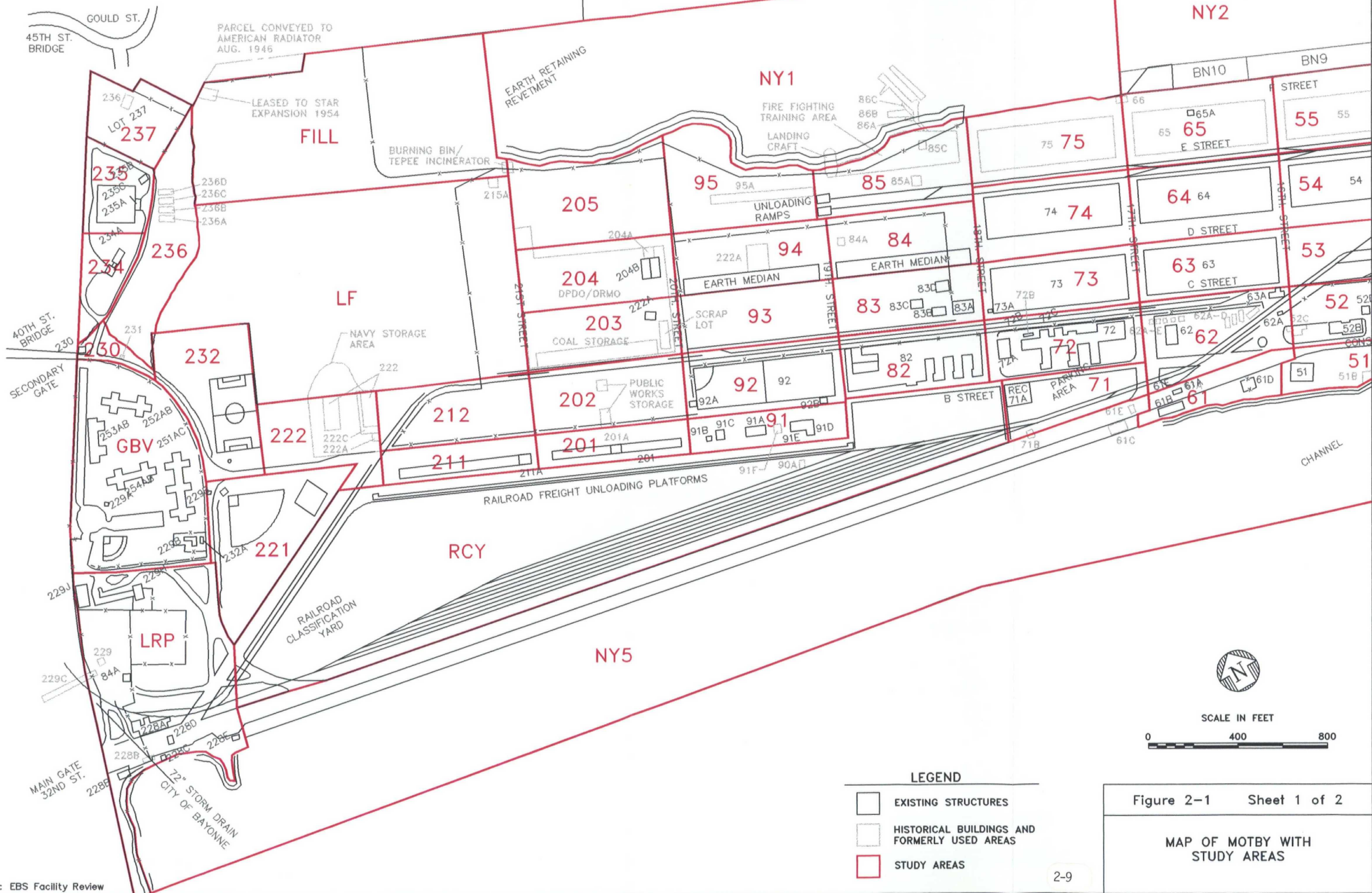


Over the years MOTBY has had different functions with different names assigned to the port terminal. The terms installation, facility, peninsula, and terminal all refer to MOTBY, and are used interchangeably in this EBS.

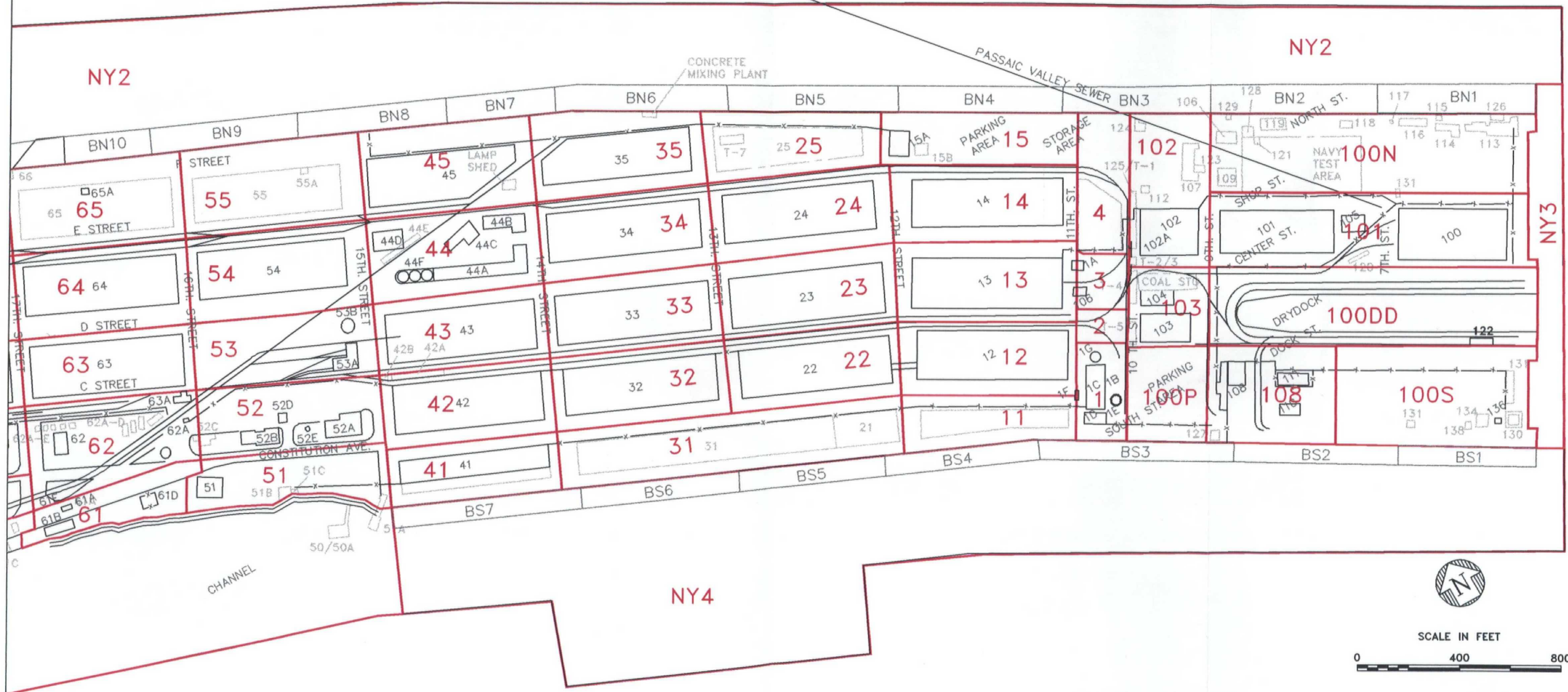
## **2.4 Limitations and Assumptions**

The findings presented in this report are subject to the following limitations and assumptions:

- Research, interview, and visual inspection teams were provided exceptionally cooperative assistance by base personnel. There were no problems in conducting site visits, in arranging interviews or in reviewing records, both actual and historic.
- Visual inspections of facilities on base were conducted during normal operating hours, while facilities were operational. Descriptions and collected information are correct for the dates of the investigations, and may change as a result of ongoing facility activities.
- Visual inspections were limited to portions of study areas in which some item or issue of concern had been identified. A comprehensive site walkover was not conducted. Portions of the site were covered by snow, and could not be seen, however, these areas did not form part of the locations targeted for visual inspections. No visual inspections were carried out in military family housing or dormitory buildings. Inspections were not carried out in buildings considered to pose structural hazards or where health and safety concerns were considered an issue, even if items of concern had been identified for those structures.
- Snow cover hampered off-site visual inspection efforts.







**LEGEND**

- EXISTING STRUCTURES
- HISTORICAL BUILDINGS AND FORMERLY USED AREAS
- STUDY AREAS

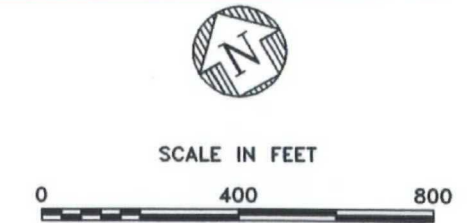


Figure 2-1 Sheet 2 of 2

MAP OF MOTBY WITH STUDY AREAS

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## **3 History, Land Use, and Environmental Setting**

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### **3.1 Base History**

The base history provides a review of activities over time at the installation, with a particular emphasis on activities which could have environmental implications or consequences. A command history has not been provided, except in order to highlight command activities which could have had, or be perceived to have had, an impact on the environment at the installation. The EBS is intended to present a very focused understanding of the terminal area over the years of service and the history section endeavors to support this goal. The history section does, in part, provide the general understanding of land use, and specifically the purpose to which certain buildings may have been put over the years. Table B-1 in Appendix B provides a summary of pre-closure and historical land use by facility. Figure B-1 in Appendix B shows all of the formerly operational buildings and areas from 1941 to 1995.

#### **3.1.1 The Building of the Peninsula**

The officials representing the City of Bayonne first considered a proposal to build a peninsula on an existing series of mud flats in 1912. It was extremely difficult to raise the necessary funding before 1937. Finally, using a mix of private and public initiatives, it became possible for dredging to begin on July 12, 1937. The original construction was accomplished with funds provided by the Federal Public Works Administration (FPWA) and through a bond subscription. Between 1937 and 1939, approximately 6,000,000 cubic yards of hydraulic fill were placed within the bulkheads, creating 153 acres of new land on the old mud flats. Hydraulic fill was additionally consolidated by driving vertical pilings. The resulting Bayonne Port Terminal (Terminal) had 396 land acres and 321 water acres for a total of 717 acres. The surface of the Terminal was formed by the sand dredged from New York Bay. The original development was connected to the mainland by a hydraulic-fill causeway of single roadway width (Refs. 214, 224).

### **3.1.2 Bayonne Port Terminal (1939 - 1941)**

The Terminal was soon put to use by the City, with cargo ships arriving from Europe and South America. The available facilities included rail tracks, a transit shed (Building 31) on the south wall (see Figure 3-1), and equipment for loading and off-loading cargo (see Aerial Photograph 3-1). The Transit Shed rapidly became clogged with goods awaiting shipment. Typical cargo included cocoa beans, castor beans, wood pulp, paper, dry hides, general cargo, and, after June 1940, explosives bound for the war in Europe.

As a result of British Ministry of War acquisition efforts, Bayonne longshoremen were hired to load ammunition arriving at the Terminal by rail aboard ships provided by the British Ministry of Shipping (Ref. 221), bound for Great Britain. By early 1941, the shipment of explosives out of the Terminal had been formalized so that explosives were brought in by train for immediate on-board stowage, and were handled only by specialized, registered longshoremen. The Bayonne Police and Fire Departments routinely provided emergency service to the Terminal, but the United States Coast Guard, in conjunction with a New York Harbor Police Boat provided additional 24-hour guard duty any time explosives were transshipped through the Terminal (Ref. 221).

Meanwhile, starting in October 1940, the Terminal came under consideration by the United States Navy as a possible naval facility. The original stimulus just before World War II for the establishment of a Naval installation on Upper New York Bay was to provide a dry dock for battleships and carriers on the ocean side of the bridges over the East River Channel, additional to the services provided by the Brooklyn Naval Yard. On March 10, 1941, immediate ownership and possession of the approximately 700-acre Terminal was awarded by a federal court to the United States Government for use by the Navy as a dry dock and as a supply base (Ref. 223).

### **3.1.3 Bayonne Naval Base (1941 - 1942)**

Once the Navy Department acquired the Terminal, it began construction of the major part of the present installation. During the ownership transition, while construction efforts were ongoing, it was necessary to end some of the existing activities at the Terminal. This included stopping all munitions loading by August 1941. It also included removing 810 drums of Nitration Toluol stored by Dias Garcia & Cia. (a Brazilian company), and 229 bales of cotton linters (owned by the Romanian government but managed by Standard Oil) (Ref. 221). All moored ships were obliged to find new berths (Ref. 221). Guard duties for the area were transferred from the Bayonne Police Department to a platoon of 60 United States Marines, living on board the USS Newton, berthed at the Terminal.

Construction went on around the clock - a concrete plant was set up along the northeastern end of the facility, to produce 2,000 cubic yards of concrete each day; the causeway to the City was widened; dredges were installed; and 1,142,000 cubic yards of fill were removed from the east end of the facility to build the dry dock (see Aerial Photograph 3-2). In an initial contract, the dry dock and foundations for Buildings 100, 101, and 108 were built by October 10, 1942, and completed for occupancy in early 1943. The bulk of what would become the Naval Supply Depot buildings were built between March 1941 and July 1943. The layout of the installation was planned from the outset to maximize rapid material flow and transshipment through the base.

The Bayonne Naval Base, as it was initially called, was an activity under the cognizance of the Commandant, Third Naval District. It included within its boundaries:

- the Naval Supply Depot (NSD) Bayonne which shipped and received all types of goods on behalf of the U.S. Navy, and was the host organization at the Terminal;
- a Coast Guard Station, part of the New York Harbor network;
- the Naval Net Depot, for the maintenance and issuance of submarine and cargo shipping nets;
- the Deperming Station (deperming is the process of removal of the permanent magnetic field on a ship resultant from the usage of electrical equipment); and
- the Industrial Department Annex (IDA), which served as an Annex to the Brooklyn Navy Yard and was in fact a tenant on the base. The IDA contained all of the facilities required for an industrial navy yard with a dry dock: a Structural and Machine Shop (B100); Sheet Metal, Pipe and Electric Shop (B101); Cafeteria and Dispensary (B102); Mill, Rigger and Joiner Building (B103); Steam Generating Plant (B104); North Sub-Station (B105); Garage (B106); Administration Building (B107); Main Sub-Station (B108); Paint and Oil Shop (B110); Latrine Building (B111); and Ferry Slips.

The total property only included 396 acres of solid land at the time. Berth space on the north side was 3,500 feet and on the south side 2,600 feet. The deperming station had 1,000 feet, the net depot had 900 feet, the Navy Yard Ferries had 500 feet, and the south and east sides of the IDA had 2,900 feet.

### 3.1.4 United States Naval Supply Depot, Bayonne (1942 - 1959)

Almost immediately after the commissioning ceremony for the NSD Bayonne on June 30 1942, supplies and material began to flow through the terminal. While activities at the NSD Bayonne needed to be censored during the war years, it was learned afterwards that it was first used to support the 1942 invasion of North Africa; the buildup in England to prepare for the invasion of Europe; and to supply the Seventh Fleet in the Pacific with fresh and dry provisions.

The principal functions of the NSD Bayonne included:

- procurement, receipt, inspection, warehousing, issuing of all types of ships material;
- loading provisions and stores on ships;
- receiving freight from other naval activities for transshipment, principally overseas; loading into designated carriers; and
- receiving, storing, and loading defense aid material.

The NSD Bayonne was very active during the 1942 to 1945 war years, and developed new and highly efficient methods to deal with the fluctuating amounts and types of cargo coming through the terminal. Warehouse (B12, B22, B75) and transit (B11, B21, B31) shed layout was designed to simplify movement of goods (Figure 3-1). The focus was on efficiency and speed, and all material passing through the base for export was categorized and repacked into one of several designated loading types. Basic Boxed Base load (standardized loads of replenishment material), Advanced Base (specialized requisitions), and Lend Lease (defense aid) material, as well as standard stock soon occupied all the existing paved outside storage areas. This resulted in a westward trend, with the development of lots 83, 93, and 202 for additional outside storage.

Basic Boxed Base loads consisted of material routinely shipped to bases outside the United States, and included supplies required during standard operations. Advanced Base loads consisted of the specialized equipment required to establish a new base or the material required to establish a temporary or mission-sensitive base.

Lend Lease loads were varied in type and in quantity. They included shipments of lubricating oil which began to arrive on May 15, 1942, and were shipped to the British Army. A peak transshipment of 3,600,000 gallons required use of 240,000 sq. ft. of storage space at one time. These volumes continued through 1943. Transit storage of other lend lease material included paints, tools, wire rope, radio and radar equipment for shipment all over the

world; diesel engines and patrol craft shipped to Russia; gun air structures and overhead cranes to Brazil; navy clothing to French North Africa and Russia; and propellers to Britain.

The Cold Storage facility (Building 35) at the NSD Bayonne became available for use in May 1943, as a result of which the NSD increased its role in supplying fresh, edible food to U.S. bases around the world. The facility was able to manage an average monthly issue of 8 million pounds of meat and 9 million pounds of fruit and vegetables. In December 1944, Bayonne became the sole supply source for food going out to the Seventh Fleet. By February 1945, 45 million pounds had passed through the facility. By March 1945, 75,000 tons of material arrived and left the NSD Bayonne cold storage every month - purchased, stored, and shipped by staff at the NSD.

Personal property and household goods also came through NSD Bayonne, especially immediately after the second World War with returning servicemen. United States Customs officials inspected incoming baggage and household goods on a routine basis. They ensured that no explosives, weapons or other illegal souvenirs were shipped through the base.

Soon the NSD Bayonne took on an additional role as the receiving point for ships returning from the war. Back Wash (BW) was the name applied to any excess supplies, damaged goods, and other items brought back from overseas which were unloaded for scrap or reuse. Included were clothing, machinery, contractor equipment, miscellaneous ship's gear, scrap, chains, wire, empty ammunition cases, inert ordnance material, rubber tires, provisions, damaged aircraft and parts, and other ship material of all kinds. The NSD Bayonne developed new ways of handling BW efficiently, reducing wastage and increasing the profitable sale or reuse of recovered material. It was able to handle excess and surplus stock in a routine, efficient manner, moving it rapidly to civilian markets or other suitable public agencies. Creative salvaging of unwanted and spoiled goods allowed the base to effectively sell much of the unneeded, stranded and returned material received.

The NSD Bayonne was the first Supply Depot to use fork lifts and pallets, in part because of the need for speed and the tremendous variety of goods shipped. Given the very different types of climates being shipped to, the Navy developed better standard packaging, preservation, and streamlined handling of goods - which easily ranged from dogs and dog food headed to Alaska to the 3.5 tons of silver coin sent to Liberia.

Goods that arrived at the NSD Bayonne would be examined for packaging, and if necessary would be re-packaged. Preservation methods for metal items and weather sensitive goods included thermocoating in plastic, dipping in different grades of heavy oil, and sealing in hot wax prior to repackaging. Individual solutions were devised for the safe, efficient and rapid handling of a variety of goods - compressed gas cylinders were laid in cradled tiers, recycled paper

ecology and environment



with three tiers of five to a stackable pallet. Sulfuric acid carboys normally could not be stacked because of being shipped with an exposed snout - a collar was developed to create a level surface, allowing tiering of pallets of carboys.

Until 1947, NSD Bayonne maintained the mission to furnish supplies and equipment to vessels of the U.S. Fleet, Naval Shore Activities, and bases overseas. Additional warehouses for goods stored at the NSD Bayonne were established, allowing the rapid filling of orders from the various clients. The NSD Bayonne served as Ordnance Primary for the Atlantic Seaboard (by late 1946, some 100,000 non-explosive ordnance [hardware] items were stored for distribution); and as Electronic Control Center for the United States Navy (since early 1946, some 40,000 items were stored for distribution).

Mission activities included furnishing general stores, provisions, ships store stock, designated technical items, and special items, as the NSD Bayonne increasingly became the Naval Material Redistribution and Disposal Agency encompassing services previously supplied by various New York Naval area facilities. As an example, NSD Bayonne was designated the central distribution point for imported wristwatches and petroleum, and a storage and distribution point for motion picture equipment, helium gas, and athletic gear.

Specific services provided by the NSD Bayonne personnel by 1946, for the Navy and as the host organization responsible for the Terminal, included the reconditioning of oil drums; cash sales of ships store; fiscal services for the Atlantic Reserve Fleet; transportation, fire and security services for all installation activities; communication and telephone services for the installation; arrangements for Port of NY cargo handling and loading; administration of base cafeterias; declaration of surplus for other activities in the area; processing of civilian personnel for the Naval Supply Corps School (NSCS); preparation of training records for student officers; BW (over 1,700 tons or 30,000 pieces) of BW received and processed during June 1947); sale of surplus material (WAA and Department of Commerce); and accounting for and transshipment of Greek and Turkish Aid Material.

#### **3.1.4.1 Activities at the NSD Bayonne After 1946**

After the war, the NSD Bayonne continued to support the Atlantic Fleet and overseas activities. Advance base requirements and ship decommissioning activities served to increase the amount of material received at the NSD Bayonne. However, by 1947, it was decided to curtail Naval Supply Facility activities and further change the mission prescribed for the NSD Bayonne. Stocks of general stores and dry provisions were reduced to the minimum required for depot maintenance. Previously, NSD Bayonne had furnished support for these items directly to the fleet in New York harbor, the local Naval Shore Establishment, and overseas

bases and units. Such goods were henceforth to be stocked at the Naval Shipyard, New York. Stocks of special clothing were transferred to the Naval Clothing Depot, Brooklyn. The overseas transshipment and overseas logistics support functions performed at NSD Bayonne were transferred to NSD Norfolk. By 1949, NSD Bayonne personnel had been severely reduced, as had activities.

The activities at NSD Bayonne reflected changes in the mission of individual naval units, as these were modified for peacetime priorities. This had an impact on the make-up of the NSD Bayonne, and new tenant groups replaced existing users.

The United States Naval Degaussing Station (Buildings 109, 113 to 119, 126) at Bayonne was deactivated in July 1946. The Bureau of Ordnance material at the base was disposed of in accordance with instructions, and the remaining material was returned to the activity from which it was obtained or transferred to the Supply Department as Surplus Property. From the records, it appears that this material included nets used to protect New York Harbor from submarine attacks, and related equipment, and miscellaneous non-explosive hardware items.

The NSCS at Harvard University and the Naval Supply Operational Training Center (NSOTC) at Bayonne, New Jersey became the NSCS, Bayonne which was commissioned in July 1946 in time for the rapid training of much needed Supply Corps Officers. Courses included all phases of supply, disbursing, commissary, logistics, ships store operations, and materials handling. The NSCS also sponsored research in material handling; operational supply, packaging and preservation; and Tailor, Cobbler and Instructor courses. Available property and open spaces at the Depot were used as an experimental laboratory for the school.

The United States Naval School, Salvage, Bayonne was located at the NSD Bayonne in October 1946, and had the mission, under the direction of the Chief of Naval Personnel to train naval officers and enlisted personnel, regular or reserve, in Ship Salvage to the extent necessary for the peacetime needs of the Navy, and to form an adequate nucleus for ready expansion upon mobilization. Training was provided in all phases of ship salvage, including wreck raising, salvage diving, gear maintenance, emergency diving assistance, and training of other personnel as needed by the service. The Salvage School used eight buildings (4, 113, 114, 115, 116, 117, 118, and 119) and maintained floating equipment and hulks for field exercises. At a given time, 15 officers and up to 150 enlisted men would be trained.

### **3.1.4.2 Military Sea Transportation Service Center at the NSD Bayonne (1950 - 1959)**

In March 1950, the United States Navy took over the Military Sea Transportation Service (MSTS) and Bayonne became the service center for U.S. Navy users of New York Harbor and other ports along the Atlantic Coast. The NSD Bayonne continued to serve as the primary distribution point for the East Coast for Ordnance and Electronic materials; serve as a storage point for war reserve materials and petroleum products; and maintain a nucleus organization capable of rapid expansion to meet phased mobilization requirements for the supply of Atlantic overseas operations.

When the Military Aid program was instituted in 1950, the responsibility for movement of cargo overseas also was placed primarily on the NSD Bayonne as the main Military Aid Installation on the East Coast. Military equipment and supplies were sent to West Germany and South Korea. During the Korean conflict, the NSD Bayonne was used to reactivate mothballed ships in the Reserve Fleet in berth at the NSD Bayonne. By January 1951, operations were up and running again, so that the USS Arcadia was able to dock and take on board 45 tons of supplies in 13 hours loading time, using a new bin-loading system developed at the installation.

The NSCS left the NSD Bayonne in 1954, but the United States Naval Supply Research and Development Facility (NSRDF), which had been established as a separate entity from the NSCS in April 1949, remained and expanded its activities. The duties of the Navy Medical and Dental Supply Depot were assigned to the NSD Bayonne. As the installation became more service oriented, it began to undergo a beautification program. Grass was planted, and a seawall constructed to reduce erosion problems. The dry dock and northern end of the base remained very functional (see aerial photograph 3-3).

Although the NSD Bayonne kept undergoing changes, transshipment of goods had not stopped completely. During Fiscal Year (FY) 1956, the NSD Bayonne sent out its largest shipment of supplies - 1,043,000 tons. It was also the year when Hungarian refugees were brought to the NSD Bayonne on three ships outfitted by the NSD. In 1957, the United States Naval School, Ships Salvage left the NSD. At the same time, the Naval Supply Activity formerly headquartered at the Brooklyn Naval Yard began to be managed out of the NSD Bayonne. In 1958, the marine platoon guarding the NSD Bayonne since 1941 left, to be replaced by civilian guards. In July 1958, the NSD Bayonne was selected to achieve a rapid recommissioning of a ship to go out to Lebanon for the crisis there.

In September 1959, the Secretary of the Navy redesignated the facility as the Naval Supply Center (NSC), Bayonne.

### 3.1.5 Naval Supply Center Bayonne (1959 - 1966)

Supply activities continued at the installation and increased centralization of research and development (R&D) activities ensured a continued use for the terminal. In 1960, warehouse automation systems were installed in the transit buildings and associated warehouses, which increased the output capacity of the facility by 60 percent and more. The Navy began to actively seek uses for the available space at the NSC, and a variety of uses, both short-term and on-going were found. The following describes some of the activities supported by the NSC during this time.

During 1961, the NSC was assigned the task of stocking some of the material handled by the Military Industrial Supply Agency (339,506 items by end of year; 376,000 by end of 1962). The Cold Storage facility was used to provide food for United Nations (UN) troops in the Congo. The NSC became a processing point in the Supply Overhaul Availability Program for ships in East Coast ports. In 1962, 80,000 pounds of medicines, vaccines, food and assorted supplies were assembled at NSC Bayonne for eventual use in Peru. This was one of several efforts in the privately sponsored missions of the "people to people" program. Another, in 1963, involved some 600 metric tons of medical supplies loaded for Ecuador. The supplies were collected at the base between May and November prior to loading.

By September 1963, in an attempt to increase use of available space at the facility, an agreement was entered upon giving the General Services Administration (GSA) the right to use warehouses and open storage space at the Center. They leased five buildings by December, and an additional four in 1964, with some outside storage space.

The NSC became the assembly and storage point for donations made by businesses and individuals through project HANDCLASP for the Third Naval District. The stevedores loaded over 250 million pounds of relief supplies collected at the NSC for passage to Norfolk and distribution overseas. In November 1963, the Coast Guard activated a new type of harbor control radar coverage of New York Harbor from equipment set up in Building 100, in the dry dock area. They also ran the pilot tests of Radar and Television Aid to Navigation equipment from here. With the active search for tenants and users, between 1950 and 1964 the facility experienced a tenfold budget increase, and increased its services accordingly. Personnel remained predominantly civilian.

One group, the Naval Supply Research and Development Facility (NSRDF), at the installation since 1949, became an important installation tenant and constant user during the 1950s and early 1960s. The NSRDF fell under the management and technical control of the Bureau of Supplies and Accounts and under the military command of the Commanding Officer, United States Naval Supply Center Bayonne, New Jersey (Table 3-1). It remained at

the installation in 1954 after the NSCS left, with the mission to perform R&D functions for the Navy and such other government agencies as may require assistance in the following areas:

- supply engineering
- food science and engineering
- clothing and textiles, and after 1961,
- specification and standardization

Supply engineering encompassed the fields of packing and preservation, warehousing, railroad car and truck cargo handling, shiploading, ship to ship material handling, and amphibious cargo handling. Existing logistics systems and methods were analyzed with a view towards improving methods and equipment involved. Engineering investigation, analyses, experimental testing, design, development and related research was conducted before final adoption or rejection. In 1961, accomplishments included Vertical Replenishment Operations (use of helicopters to transfer cargo); and development of Laundry Specifications for Water Extractor Machines (ships laundries). In 1964, they included Integrated Materials Movement Systems (using plastic envelopes to protect goods in handling); laundry mock-up streamlining (typical for a light cruiser); development of underway replenishment principles (conveyors and handling systems); and outfitting supply barge floating base to support task force requirements.

Food Science and Engineering group was responsible for improving functional characteristics and design of commissary equipment and layout and design of commissary spaces; and designing equipment which embodied the latest developments in time and motion economy. For example, in 1961, a Destroyer Size Galley Mock up was built; General Mess Staffing Guides were developed; technical analysis of Galley Gear and Dinnerware was conducted; and general technical assistance to Naval Ships and stations was provided. In 1964, the group devised new feeding systems (on land and in high altitude Navy aircraft); experimented on use of frozen veal; and developed temperature limiting devices for submarine deep-fat fryers.

Clothing and Textile R&D was geared to meeting Navy requirements for clothing, textiles, footwear, and related items. The group both participated in and conducted, research and development projects for other government agencies; established design criteria; created prototype models; conducted field evaluations; and performed special assignments for the Permanent Naval Uniform Board. They developed cold weather clothing, insulated boots,

and waffle knit underwear. In 1961, they experimented with signal flags, tested fiber dyestuff combinations, performed wind tunnel studies, and tested and issued catapult coveralls designed for wear over winter underwear. In 1964, polaris coveralls and balloonist clothing were developed. All U.S. Navy clothing R&D functions were consolidated at Bayonne during 1963.

Specification and Standardization technical functions included research, development, testing, and evaluation of items. The NSRDF acted as participating and/or assignee agency in the DoD Standardization Programs; developed and evaluated specifications and standards requirements to reflect findings and improvements; and designed and developed new and improved commodities, processes, and test equipment.

In 1963 the Defense Supply Agency was established by the DoD to provide a more economical military supply system. This initiated changes that materially reduced the number of U.S.-based customers dependent on NSC Bayonne for support. At this point, the Fleet List functions were transferred away, as was disbursing, and data processing. Bayonne was assigned to provide supply support and fiscal accounting services for additional Naval Communication and Security stations in Europe. As a result, the NSC again began to seek innovative ways to use the available facilities and space.

### **3.1.6 Military Ocean Terminal Bayonne**

The Military Ocean Terminal, Bayonne was established on July 1, 1965 as a Class II activity under the Command Military Traffic Management and Terminal Service (MTMTS). The NSC had a dual mission to supply manifested and fleet support cargo, which was to remain in New York Harbor, but there was capacity available to absorb a combined Army and Navy mission. MOTBY's responsibilities were to load and discharge DoD manifested export/import cargo and to process DoD passengers arriving by water. Initially MOTBY was established within NSC, using 11 buildings on a tenancy basis. As a tenant of the NSC, MOTBY was organized to assume terminal operations performed by the Military Ocean Terminal, Brooklyn, New York and similar operations for the Navy. In a three phase move beginning in June 1964 and fully completed in September 1975, Military Traffic Management Command, Eastern Area (MTMCEA) headquarters moved to the terminal from its former location at the Brooklyn Army Terminal.

MOTBY assumed operations previously performed at Military Ocean Terminal, Brooklyn and similar ocean terminal operations to those previously accomplished by the NSC. Cargo input began in late fall of 1965, while the transfer of the Military Ocean Terminal, Brooklyn workload continued through November 1966. Very quickly MOTBY assumed all

responsibilities for cargo shipped to the Mediterranean theater and also to Africa, the Caribbean, and South America. This represented 2.3 million metric tons of export and import cargo annually using container operations to expedite efforts.

On July 1, 1967, the NSC was finally terminated and title to the land was transferred to the Army. The facility was officially designated as MOTBY. When the Army took possession of MOTBY, some physical changes were made to the terminal. These included upgrading certain facilities, such as Building 72, now used to house troops in a modern, voluntary Army; and converting Buildings 63, 69, 73, and 74 into automated cargo processing warehouses. Building 13 became a sea-van shipping warehouse, in which 3,600 metric tons per week were stuffed into 120 containers/week. In 1972 and 1973, Buildings 55, 65, and 75 were removed, to create open storage areas suitable for use in Roll-on/Roll-off (RoRo) operations. Some 60 percent of MOTBY throughput was being containerized and handled via the RoRo facility (see aerial photographs 3-4 and 3-5). The 21.3 miles of railroad tracks at MOTBY serviced buildings, outdoor storage, and the dry dock area. The classification yard was used to classify inbound and outbound cars by Central Railroad of New Jersey and Lehigh Valley Railroad. Tenants of MOTBY during this period included: First United States Army Veterinarian Units; Naval Fleet Material Supply Offices; Military Sealift Command; NSC Newport, Bayonne Annex; Army Air Force Exchange Service-Atlantic; and three home ported ships (USS Robert K. Huntington, USS Great Sitkin, and USS Mauna Loa). The third phase of the move was begun in June 1974 when MTMTS, Eastern Area headquarters left the Brooklyn Army Terminal (which was deactivated) for MOTBY. Military Traffic Management Command, Eastern Area (MTMCEA) took on its new name on July 31, 1974 and accomplished its move to MOTBY by September 1975 (Ref. 35).

In 1975, the stated mission of the MTMCEA MOTBY was to plan, coordinate, and accomplish the movement of DoD and other government agency sponsored ocean cargo through the terminal and other commercial facilities in the Port of New York. The Army provided installation support services and host functions to some 25 tenants. Additional tenants included: USA Communication Command - MTMTS Communication, Electronics Activity, Eastern Area; USA Logistics Control Office, Atlantic Movement Branch; USAF Water Port Liaison Office; MTMTS - Eastern Management Information System Office; GSA distribution facility; Fleet Material Supply Office; Navy International Logistics Control Office; Defense Supply Agency, and Defense Subsistence Regional Defense Storage Facility and Supply Office. The base was equipped to receive hazardous cargo, if properly labelled, or shipped through in Conex or vans (as provided for under CFR 46 part 146). No Class A,

B, or C explosives, or chemical ammunition could be brought through MOTBY without special permission and documentation.

In 1977, MOTBY was selected for the REFORGER 77 which represented a major strategic exercise in deployment to Europe to participate in North Atlantic Treaty Organization (NATO) exercises. Some 37,000 metric tons of equipment were stored on two vessels in a matter of days using berths N9 and N10, representing the biggest single effort undertaken at MOTBY since the Korean War.

Records from the 1980s show typical cargo throughput at MOTBY to include howitzer tubes, refuse containers, metal containers, kitchen appliances, semitrailers, "rough terrain," forklifts Ford vans, generator trailers, M-1 tanks, sedans, station wagons, medical stores, shelters, tow tractors, showcases, and sweepers.

In the early 1990s, the Desert Shield effort called upon MOTBY's resources to assist with the shipment of material for use in Desert Storm. Afterwards, material was returned to MOTBY for disposal. The shipment, storage, and receipt of household goods has been a continuing service provided by the installation. Some warehouses have been designated for the long term storage (4 to 6 years) of boxed household effects for U.S. military personnel and civilians serving duty abroad. The facility is also used as a shipping point for privately owned vehicles being shipped overseas, or being returned to the United States (see aerial photograph 3-6).

The installation currently houses MTMCEA headquarters. Management of the entire installation and all its buildings falls under the United States Army Garrison Bayonne. The port facility, including the secured warehouse and storage areas, is operated by the 1301st Port Command as a tenant. All transport related loading activities in the port area are carried out by contracted-for stevedores.

In 1995, MOTBY was designated for closure under BRAC.

### **3.2 Land Use**

Despite the various command changes and distinct phases of operations experienced at the installation, land use patterns have remained relatively constant. There are five clear areas of distinct land use patterns. Starting from the east they are:

- The Dry Dock Area,
- Warehouse, Administration, and Central Area,
- The Railroad Classification Yard,
- Landfill, and
- Housing and other Western areas.



The map designated as Figure 3-1 and provided at the end of this section provides an overview of buildings at the facility including historic buildings, no longer in use or existence today, which may be useful for the following sections. Aerial photographs 3-1 through 3-6 also provide a visual guide to buildings.

### 3.2.1 The Dry Dock Area

Completed in 1943, the dry dock has often been referred to as the largest facility of its type in the western world, outside Australia. It has been used to service, repair, mothball, prepare, and outfit all types of vessels, including the Queen Elizabeth II, when in need of repairs (see Section 4.4.6 for operations).

The dry dock is approximately 1,100 feet long by 155 feet in width. The base of the dry dock was constructed of tremie concrete, 20 feet in depth, placed underwater over 2 feet of prepared broken stone bed. The site was then cofferdammed and dewatered and the remaining construction performed in the dry. A 2-foot, reinforced concrete finishing floor slab rests above the tremie concrete. The lower side and end walls are approximately 31 feet in height. The wall thickness is 20 feet 6 inches at the bottom tapering to 17 feet at the top (Ref. 241).

Built by the Navy to provide the Brooklyn Naval Yard with a dry dock annex facility, the area was operated as a separate entity within the terminal throughout the Navy years (1942 to 1966). A fence cordoned off the area, which had its own cafeteria and dispensary facilities, and kept activities distinct from those of the rest of the facility. Although this area was operated as a separate entity, utilities and installation services were provided by the Navy host.

When the Army became the host organization at the facility, the dry dock was not used, until 1976 when it was leased to the Bethlehem Steel Corporation. In 1982, the dry dock was leased to Hoboken Shipyards, which was bought out by Braswell Shipyards, Inc., until 1988. Since then the dry dock has not been in use on a regular basis.

A 1990 condition survey identified the presence of several cracks up to 4 inches wide along the walls of the dry dock. Infiltration into the dry dock was observed due to a head differential when the dry dock is empty (Ref. 241).

Building use in the northern area of the facility can be segregated into several periods.

### The Northern Edge

- 1943 to 1947: The degaussing buildings and support facilities at the deperring station (Buildings 109, 113 to 119, and 126).
- 1947 to 1958: The Navy Salvage School (Buildings 113 to 116, 118, and 119)

### The Dry Dock

- 1943 to 1965: Dry dock area and buildings leased to Brooklyn Navy Yard.
- 1976 to 1982: Bethlehem Steel lease (Buildings 100, 110, 111, 120, 130, and dry dock)
- 1982 to 1988: Braswell Shipyards lease

### The Southern Edge

- Substation for facility
- Fuel Transfer, Storage, Salvage, and Fire Training (Buildings 130, 134, 138)
- Pump houses.

## **3.2.2 Warehouse, Administration, and Central Areas**

Certainly a key activity at the installation throughout its history has been the transshipment of goods to destinations around the world. From just one transit shed in 1939, the facility rapidly developed a very efficient network of buildings, linked by rail lines, and with moving walkways suspended between buildings. All movement of goods was handled by contractor stevedores, civilians hired as labor by the facility.

Distinct types of goods were shipped through the installation.

- **Export/Import of Goods.** Supplies would arrive by train or by ship and would be classified by type. They would be directed to a warehouse for checking, preservation, and repackaging as necessary, before being routed to a transit shed to await onward shipment. As the facility moved from strap and pallet loading, to break bulk operations, to container loading, through Conex and van stuffing, to RoRo activities, the transit shed warehouse network became more mechanized and efficient. Typical transit sheds were Buildings 11, 21, 25, 31, 41 while warehouses included Buildings 14, 22, 23, 24, 32, 33, 34, 42, 43, 54, 55, 63, 64, 65, 73, 74, and 75.
- **Bulk Export.** As the installation provided supply service to a greater range of customers, many goods were stocked in warehouses to meet dispatch needs. For example, the bin section of the warehouse portion of Building 42 was used to keep nuts, bolts, and other hardware items that could be accessed to fill client orders. Typically, a cart would be trundled through the specified bin sections, listed items would be collected, taken for packaging, and onward shipment.

- **Return of Damaged or Excessed Goods.** As bases were shut or operations overseas closed down, equipment, waste material, and odds and ends, would be brought back to the installation for disposal. This material would typically be stored in an open lot, after initial segregation by type. Anything noted for resale would be sold. Other material would be categorized for reuse, recycling, recovery, scrap, or disposal. In the early years, hard goods (metal, wood, concrete) would be disposed of in fill areas at the base, to strengthen the surface area of the facility. Some goods would be disposed of in the landfill. Others would await sale or disposal in the lots assigned to the Defense Property Disposal Office/Defense Reutilization and Marketing Office (DPDO/DRMO) (93, 203, 204, and part of 205).
- **Household Goods.** Increasingly, household goods were stored at the facility, for military families being sent abroad as well as for other GSA customers from various government agencies being posted overseas. Some household good containers would arrive for transshipment while others would be designated for storage (which could last from 2 to 6 years). A number of warehouses were set aside for such shortages.

Very few of the buildings at the facility were built originally as administrative space. The exceptions are the penthouse in Building 42 and certain portions of Building 82. However, on an as need basis, whether for tenant use or for use during a specific event, administrative units have been built into many of the buildings at MOTBY.

The central area of the facility has become a service core for all of MOTBY, including the base restaurant, clubhouse, cinema, dispensary, motel, emergency response service, heating service, car pool service, and other facilities available for base-wide use.

Although this part of the terminal is divided into the secured 1301st Port area and the more accessible garrison area, many of the services are shared between the 1301st Port (tenant) and the garrison (command host).

### **3.2.3 The Railroad Classification Yard and Railroads at MOTBY**

There are over 21 miles of rail track at the facility built to provide access to buildings and assist in the rapid transshipment of supplies and goods. The Railroad Classification Yard is used by Central Railroad New Jersey and Lehigh Valley Railroad to classify cars at the facility. Use of the classification yard depends on how busy the facility is, and how much material is being shipped through. Loading platforms, both for goods and passengers, were built at strategic locations about the facility. The tracks are still in good condition for use, having been recently re-bedded. Very little information was available through the records and interviews about activities in this area.

From the classification yard, tracks proceed along Jersey Avenue from southwest to northeast, along Avenues C and E from west to east, along 10th Street from south to north, around several buildings in the Dry Dock Area, and along several spurs leading to buildings. Many of the warehouse buildings have unloading platforms adjacent to these rail lines. A railroad maintenance shop in Building 53A has been used to service locomotives and railcars used at MOTBY.

#### **3.2.4 Landfill**

The landfill is a distinct part of the facility, and has been treated separately in the land use inventory (Appendix B) and in other inventories. Suffice it to note here that the landfill used for wastes generated at MOTBY is separated from the shore by an area of dredged fill material. It is likely that the landfill area has changed in size over time as more open land mass was reclaimed to meet growing disposal needs. It is likely that a broad mix of waste materials found their way to the landfill. Finally, although the landfill has been officially closed since the late 1970s, some dumping of construction debris and other material appears to have continued.

#### **3.2.5 Housing and Other Western Areas**

The western end of the facility consists of the Goldsborough Village housing complex which provides married quarters for military personnel, the commander's home, the reservoir, areas in Lots 1 and 237 that have been leased out at various periods, playing fields, communal activity buildings and the gate area with its associated parking and entry processing facilities. There has not been any industrial activity at this part of the facility, at least since the building of the terminal.

### **3.3 Base Utilities**

This section provides a summary of the existing utilities at MOTBY. Section 3.3.1 presents information on the drinking water supply, describing MOTBY's water sources, storage facilities, treatment systems, and distribution network. The sanitary and storm sewer systems are presented in Sections 3.3.2 and 3.3.3, respectively. Sections 3.3.4 and 3.3.5 summarize the terminal's electrical supply network (including source, usage, and distribution of electricity) and heating system, respectively. Finally, a summary of solid waste collection and disposal is provided in Section 3.3.6.

### 3.3.1 Drinking Water Supply

MOTBY purchases potable water from the City of Bayonne. The Wanaque Reservoir, operated by the North Jersey Water Commission, serves as the city's primary water supply. The reservoir has a storage capacity of 30 billion gallons. Following pH adjustment and chlorination, water from the reservoir travels 35 miles by gravity flow through 72-inch aqueducts to Kearny, New Jersey, and subsequently to Bayonne, New Jersey via 30- and 48-inch mains. This supplies Bayonne with 50 to 55 pounds per square inch (psi) daytime pressure and 70 to 75 psi pressure at night. Bayonne is also connected with the Boonton Reservoir which serves as an auxiliary supply (Refs. 105, 193).

The water supply for daily operations at MOTBY enters via a 12-inch line at 40th Street. This connection feeds a 3.2 million gallon (MG) reservoir located in the northwest corner of the terminal (235A). A 12-inch line connection at 32nd Street serves as an auxiliary water supply. Both connections are metered. Water from the reservoir is fed into the MOTBY fresh water distribution system (Refs. 23, 105, 142, 193). This water is normally rechlorinated at the base prior to use. However, during the EBS inspection, MOTBY personnel indicated that the chlorination system has not operated for over 1 year due to inoperational chlorine injector pumps (Ref. 801). Under most cases, the rechlorination of purchased water classifies the purchaser as a "supplier of water." However, the State of New Jersey does not consider MOTBY a water supplier (Ref. 142). The auxiliary supply enters the terminal system directly and is normally only used in an emergency.

Fresh water storage at MOTBY consists of the 3.2 MG underground reservoir and a 100,000-gallon elevated steel tank (Building 1B) which maintains static pressure on the system and through which water enters the distribution system. A meter in the elevated tank activates a pumping station at the reservoir to maintain the proper water level in the tank. Two additional elevated storage tanks provide water for the MOTBY Fire Department. These two tanks, located at Buildings 100 (50,000 gallons) and 53B (100,000 gallons), service sprinkler systems in Buildings 22, 32, and 42 via 8-, 10-, and 12-inch mains. These are not considered potable water tanks (Ref. 11, 123, 142).

The MOTBY fresh water distribution system consists of 6-, 8-, and 12-inch cast iron pipe. It serves all the domestic needs of the terminal and all five fire hydrants west of 10th Street and six fire hydrants between 9th and 10th Streets. There are approximately 98,900 linear feet of distribution lines in the system. There are three 12-inch high pressure lines, including two on the north bulkhead and one on the south bulkhead (Ref. 105). There is a saltwater distribution system which serves all the fire hydrants (except for six) east of 10th Street, and formally supplied flushing and air compressor cooling water for Building 35. This

is a partially looped system of 8- and 10-inch cast iron mains. The saltwater distribution system consists of 2,200 linear feet of pipeline (Ref. 105). According to personnel interviewed during the EBS inspection, this system is currently out of service.

In the event of an emergency or mobilization situation, the City of Bayonne can supply up to 4 million gallons per day (MGD) of water to MOTBY. This supply far exceeds MOTBY's estimated demand during a mobilization (Ref. 142).

### **3.3.2 Sanitary Sewer System**

MOTBY is served by two independent sanitary sewer systems as well as select dedicated septic systems. The Goldsborough Village housing development and Main Gate complex, located along the western end of the terminal, are served by a vitrified clay combined sewer connected directly to the combined sewer system of the City of Bayonne. The City of Bayonne operates a treatment plant which discharges to Kill Van Kull. In addition, septic systems are used to treat sewage from Buildings 234A, 235A, 235B, and formerly from Buildings 230 and 236A through D (see Section 4.3.2). The remainder of the terminal is served by the MOTBY sanitary sewer system which directs sewage to the MOTBY sewage treatment plant (STP), located at the southeastern end of the terminal (Refs. 23, 105, 142, 193).

The MOTBY sewage collection system operates primarily via gravity flow. Sewage from buildings is directed primarily via gravity flow through 4-, 8-, 10-, and 12-inch vitrified clay pipelines to trunk lines along D Street and Center Street (near the dry dock). In the south-central portion of the terminal, where invert grades do not allow for gravity flow to the trunk line, sewage is directed to a pump house at Building 91B. Sewage entering the Building 91B pump house is pumped through 8- and 10-inch force mains to the trunk line along D Street. Sewage within the 12- and 15-inch vitrified clay trunk lines flows by gravity to the sewage pump house (Building 1A), located near the intersection of 11th and D Streets. This pump house, which receives all sewage from the MOTBY sanitary sewer, uses two 250 gallons per minute (gpm) pumps to direct sewage south through a 4-inch steel force main to the MOTBY STP (Building C) (Refs. 105, 142, 192, 515). A description of the plant is provided in Section 4.3.1.

Waste Water Treatment starts with the sewage lift station (Building 1A) which transfers sewage from the low point of the sanitary system to a set of Imhoff Tanks, which have been converted to an extended aeration, activated sludge process. Sewage is also received from ships docked at the berths and is piped to a holding tank which releases the

effluent on a controlled basis into the treatment plant which has a capacity of 180,000 gallon/day.

### **3.3.3 Storm Sewer System**

The MOTBY storm sewer system relies on gravity flow, outfalling to Upper New York Bay (except for the combined sewer at Goldsborough Village). Storm water is collected by a series of catch basins and drain pipes which discharge into Upper New York Bay via numerous outfalls. The number of outfalls has been designated as both "well-over-100" and "44" (Ref. 197). All manholes on F Street between 9th and 17th Streets, and on A Street between 9th and 15th Streets, outfall to the north and south through the relieving platform into the bay. Three lines outfalling through the relieving platform at the eastern end of Dock, Center, and Shop Streets drain the area east of 9th Street (dry dock area). On the north side of the terminal, there are also outfalls located at 18th, 19th, and 21st Streets. On the south side there are several outfalls between 16th Street and the Main Gate. The invert elevations of all outfalls are below the highwater marks; therefore, the system is flushed by bay water daily. Drainage problems are reported to occur during heavy rains and high tides in the vicinity of D Street, between 11th and 18th Streets, and the former storage areas between 18th and 21st Streets (Ref. 105, 193).

MOTBY is currently authorized to discharge stormwater under New Jersey Pollutant Discharge Elimination System (NJPDES) General Permit No. NJ0088315, which became effective on July 7, 1993 and expires on November 1, 1997. As a requirement of the permit, MOTBY developed a stormwater pollution prevention plan (SPPP), which identifies source material storage areas, non-stormwater discharges, and best management practices which focus on pollution prevention. Current non-stormwater discharges identified by MOTBY include steam condensate from the boiler plant (Building 44C) and effluent from the sewage treatment. However, other non-stormwater discharges may exist (see Section 4.4.5) (Refs. 41, 123).

### **3.3.4 Electrical Supply Network**

MOTBY receives its electrical power from the New Jersey Public Service Electric and Gas Company (PSE&G). The power is routed to the facility's primary substation (Building 61D) via two 27,000 volt overhead lines. After the power is metered and ownership is transferred to the facility, a 3,750 kilovolt-ampere (kVA) step-down transformer decreases some of the voltage to 4,160 volts for distribution to the housing area and facilities at the west end of MOTBY. The remaining power continues via underground power lines to

the terminal's main substation (Building 108) where three 4,000 kVA step-down transformers decrease the voltage to 4,160 volts for distribution to the north substation (Building 105) and the terminal's main switching station at Building 44C. Building 105 has two secondary transformers of unidentified ratings which then distribute electricity to the portion of the terminal east of 10th Street. Building 44C has two 20 kVA step-down transformers and serves the remaining areas of MOTBY (Ref. 23). Refer to Tables G-2-1 and G-2-2 for a list of transformers identified at the facility.

In the event of a power failure or an emergency situation, there are eight emergency generators located throughout the facility to provide electricity for the dispensary emergency room, medical storage areas, fire alarm systems, and communications stations. Included in this inventory is a 600 kilowatt (kW) diesel generator in Building 42 and a 300 kW diesel generator in Building 44C (Ref. 23, 194, 254).

### **3.3.5 Facility Heating**

Heating for most buildings at MOTBY is provided by a central heating plant located in Building 44C. The plant contains two main boilers rated at 94 million British thermal units per hour (MMBtu/hr) and 75 MMBtu/hr and a stand-by boiler rated at 60 MMBtu/hr; all use No. 6 fuel oil. Together, the main boilers are able to provide 170,000 pounds of steam per hour while the stand-by boiler can provide an additional 60,000 pounds of steam per hour. Steam leaves the plant at approximately 125 psi and is distributed throughout the facility in a network of over 60,000 feet of underground insulated piping and condensate return lines (Ref. 23, 194, 254).

According to the draft MOTBY Title V Permit Application, 18 additional boilers, rated between 0.141 and 4.19 MMBtu/hr, provide heat and hot water for Buildings 22, 44B, 51, 52B, 61B, 83A, 91A, 211A, 228A, 229H, 229J, 234A, 235B, and 254AB (Goldsborough Village) (Ref. 254).

### **3.3.6 Solid Waste**

Solid waste generated at MOTBY consists of approximately 2,500 to 2,700 cubic yards (cy) per month. This accounts for approximately 31,000 cy annually. Solid waste is contracted to Browning Ferris Industries (BFI) who owns the dump bins and manages disposal activities. These numbers do not reflect items requiring demilitarization or salvage for resale which are handled by the DRMO located in Dover, New Jersey (Ref. 142).

Solid waste is collected in fifty 4-cy, twenty 6-cy, and nine 3-cy dumpsters, and forty 30-gallon and twenty 25-gallon trash cans. The dumpsters are cleaned regularly. Solid waste  
recycled paper ecology and environment



is collected by a contractor 6 days per week. Solid waste is transported by the contractor to the Meadowlands landfill. A landfill was previously operated at MOTBY from the early 1940s until 1969. The MOTBY landfill continued to receive construction debris into the early 1990s (Ref. 142).

MOTBY is required by the State of New Jersey to recycle 25 percent of their solid waste. MOTBY currently recycles cardboard, old office records, office paper, newspaper, computer paper, tin, aluminum, other scrap metal, and glass. Paper products are recycled at various off-site locations. DRMO handles the resale of scrap metal. During the EBS inspection, a scrap metal pile was observed between Buildings 12 and 22. Other materials are reportedly collected in dumpsters provided by the City of Bayonne (Ref. 142, EBS Survey).

### **3.4 Previous Investigations**

Within the past 20 years, several environmental investigations have been conducted at MOTBY. These investigations have ranged in scope from regulatory inquiries and mobilization studies to focused hazardous materials inspections to facility-wide remedial investigations. The following summaries highlight some of these projects. Appendix K provides a cross-reference between the sites in the Defense Site Environmental Restoration Tracking System (DSERTS), the Remedial Investigation sites, and EBS Inventories of Environmental Concerns.

#### **3.4.1 1977 USAEHA Environmental Assessment**

In March 1977, USAEHA completed an Environmental Assessment of the terminal (Ref. 105). This survey was performed as a requirement of Army Regulation (AR) 200-1. This regulation implemented the requirements of the National Environmental Policy Act, the Council on Environmental Quality Guidelines, and DoD Directive 6050.1, pertaining to the preparation of Environmental Impact Statements. The regulation required the assessment of the environmental impact of Army projects, actions, activities, and any other actions which would significantly affect the quality of the human environment.

At the direction of the Army Health Services Command (HSC), USAEHA conducted surveys of ecology, ambient air quality, water quality, solid waste and hazardous materials management, pesticide operations, and noise sources at MOTBY from June 1976 to March 1977. For each of the identified items, USAEHA summarized existing conditions and potential environmental impacts, and provided recommendations focusing on the mitigation of environmental impacts.

Although USAEHA reported that none of these areas had significantly affected the quality of the human environment, the following impacts were highlighted. With respect to ecology, USAEHA concluded: the terminal's practice of frequently mowing the natural tall grass reduced food and cover for birds and wildlife; and the water quality of New York Harbor, bottom sediments, and aquatic life were subject to minimal impact. Elevated hydrocarbon levels in ambient air were primarily attributable to off-road sources such as forklifts, cranes, and tractors. The following conclusions were made concerning water quality: the Spill Prevention Control and Countermeasures Plan (SPCC) was inadequate; a NPDES permit for Bethlehem Steel's dry dock operations was needed; dry-docked ships were not using available sanitary facilities, and a ship's oil/water separator was discharging to the harbor; waste battery acid was being improperly disposed of at Building 45; petroleum, oil, and lubricants (POLs) from maintenance areas were discharging to storm drains; and a discharge suggestive of boiler blowdown was flowing to the harbor. The operation at the solid waste transfer station was recommended for upgrade or termination.

#### **3.4.2 1980 USATHAMA Installation Assessment**

In 1980, USATHAMA completed an Installation Assessment performed at MOTBY (Ref. 193). This report was prepared according to DARCOM Regulation 10-30, Mission and Major Functions of the USATHAMA, May 22, 1979. The purpose of the Installation Assessment was to assess the environmental quality of MOTBY with regard to the use, storage, treatment, and disposal of hazardous materials and to define any conditions which may adversely affect health and welfare or result in environmental degradation.

A records search and facility interviews were conducted in order to meet the stated objective. The report provided a summary of existing conditions at MOTBY, including environmental setting, terminal activity, utilities, hazardous material storage and disposal, wastewater treatment, and water quality. The following conclusions were made with respect to potential environmental impacts. The possible hydraulic connection was identified between the probable landfill contaminants, groundwater, and Upper New York Bay. Because the Upper New York Bay waters has been contaminated with hazardous materials from several sources in the area, contaminant attribution was considered a potential problem. Pesticides were being improperly stored. Several transformers in- and out-of-service appeared to have leaked. Finally, discharges from the steam cleaning operation at Building 44D to the storm drainage system were improper.

### **3.4.3 1987 Dames & Moore Remedial Investigation, Phase I**

Under contract to the Army Corp of Engineers-Kansas City in 1987, Dames & Moore performed a remedial investigation of several areas of concern (Ref. 259). These areas included: the landfill, the former Navy Storage Area in Lots 212 and 222, several UST locations, the DRMO Storage Area in Lot 204, the battery acid pit in Building 45, the PCB spill area near Building 105, the drum storage area near Building 105, and the fire training area in Lot 85. Descriptions of each of these areas are provided in Appendix B. These areas are also identified in Figure 3-1.

### **3.4.4 1990 MOTBY Army Regulation 15-6 Investigation**

Between February 1990 and July 1990, MTMCEA conducted an informal investigation of MOTBY pursuant to Army Regulation (AR) 15-6 (Ref. 178). The initiation of the investigation was in response to a report of more than 100 55-gallon drums containing hazardous waste in Building 14. The purpose of the investigation was to determine the location, origin, and disposition of any hazardous materials and wastes at the facility (Ref. 178).

The investigation consisted of numerous interviews, inspections, record reviews, and procedural assessments. During the investigation, Buildings 14, 35, 45, 101, and the area between 12 and 22 were identified as most problematic in association with collection, identification, storage, and disposal of hazardous materials and wastes. All division heads and authorities at MOTBY were briefed several times as discussions focused on interim solutions to reach compliance. Specific actions discussed included bringing a contractor to remedy the particular violations contained in the Notice of Violation/Compliance Demand (NOV/CD), conducting air sampling around the pesticide storage and work areas in Building 101, establishing updated procedures for handling hazardous materials, and establishing Building 111 as a hazardous waste accumulation point.

In the end, a letter was sent out to all addresses at the facility to cease improper disposal of hazardous waste until specific requirements and procedures could be established. Furthermore, the Facilities Engineers Office began to consolidate all hazardous materials into Building 14 for disposal or reutilization through the DRMO.

### **3.4.5 1992 Foster-Wheeler Enviroresponse Asbestos Survey**

In 1990, MOTBY contracted Foster-Wheeler Enviroresponse, Inc. to conduct a facility-wide survey of all buildings and areas for asbestos-containing materials (ACM) (Ref.

253). The survey and associated exposure risk assessment have been used by MOTBY to identify ACM in need of repair or upgrade for its Asbestos Management Plan. Refer to Section 4.5.1 for a more detailed summary and description of the project.

### **3.4.6 1993 USAEHA Mobilization Environmental Evaluation**

In March 1992, USAEHA conducted an evaluation of MOTBY to predict the environmental health effects that would be expected at MOTBY during periods of mobilization (Ref. 142). The evaluation was also intended to assess compliance issues that would be encountered during these times; and to recommend actions that would enable the installation to remain in compliance. This study is significant because its recommendations concur with previous investigations.

During the evaluation, six areas were considered: air pollution, groundwater contamination, hazardous waste management, potable water, solid waste management, and wastewater processing. Of these six areas, USAEHA made recommendations for only four areas. For air pollution, USAEHA recommended that MOTBY compile an air emissions inventory and contact the NJDEP to maintain progress on its permit applications for some of its major sources. For hazardous waste, USAEHA advocated completion of the upgrades to Building 111 and that all manifests be routed through the MOTBY environmental office. Concerning potable water, implementation of a cross-connection prevention program and completion of the upgrades to the installation potable water distribution system were suggested. Through its solid waste evaluation, USAEHA identified several large solid waste items that needed to be removed from MOTBY, and stated that future dumping at the landfill should be prevented.

### **3.4.7 1994 Dames & Moore Remedial Investigation, Phase II**

As a follow-up investigation to the 1987 RI, Dames & Moore returned to MOTBY to perform additional sampling to confirm previous results and conclusions (Ref. 206). Two additional areas were investigated. These areas included the DRMO Storage Area formerly located in Lots 203 and 204, and the large USTs associated with the boiler plant at Building 44C. As of August 1996, NJDEP has not concurred with the RI conclusions and no investigations were currently underway at any of the 10 RI sites. Consequently, the data from the RI, but not the conclusions, were used for categorization purposes in the EBS. Further investigation and/or remedial efforts, as necessary, are under consideration by the BRAC Cleanup Team (BCT) through the development of a BRAC Cleanup Plan (BCP). Table H-1

in Appendix H provides more details of the investigations. These areas are also indicated in Figure H-1.

#### **3.4.8 1994 Geophex Environmental Compliance Assessment System Evaluation**

Under contract to the United States Army Corp of Engineers, Baltimore District, Geophex, Inc. was tasked to evaluate the extent to which MOTBY was achieving and maintaining compliance with all applicable environmental laws and regulations (Ref. 189). The purpose of the evaluation was to identify deficiencies and to provide corrective action alternatives. During the evaluation, facility-wide operations and activities were evaluated for compliance in 17 different regulatory areas. Major findings were associated with the operation of unpermitted solid waste disposal areas, improper disposal of asbestos on site, the unpermitted discharge of contaminated wash water into the storm sewer system, the need for a hazardous waste contingency plan, the need for permits for the boiler plant and fuel storage tanks, and failure to remediate petroleum-contaminated groundwater and PCB-contaminated soils.

#### **3.4.9 Historical EPA Inspections of MOTBY**

Over the past 20 years, numerous EPA inspections of MOTBY have been performed to ensure compliance with various permit-associated activities or to assess general practices. Some of the regulatory areas for which these inspections have been conducted include RCRA, the Oil Pollution Act of 1990 (OPA), NPDES, CERCLA, and the Toxic Substances Control Act (TSCA). In the aggregate, these inspections have encompassed most activities at MOTBY and at times have resulted in the issuance of various Notices of Violation and compliance demands. Some of the investigations discussed previously have been performed in response to these notices of violation. In general, EPA inspections have provided an enforcement mechanism for regulatory compliance at MOTBY.

#### **3.4.10 Historical NJDEP Inspections of MOTBY**

MOTBY has also been inspected numerous times in the past twenty years by NJDEP. However, unlike the inspections performed for EPA, a review of the NJDEP inspections reveals a keener focus. Specifically, the majority of the inspections relate to NJPDES permits associated with the sewage treatment plant, storage tanks, air emissions, and hazardous waste management.

## **3.5 Environmental Setting**

In the environmental setting section, the MOTBY peninsula is evaluated with respect to existing environmental conditions and information gathered through previous environmental studies conducted at the facility. This has been done in order to provide as comprehensive and current an overview of the environmental context for the EBS as feasible.

### **3.5.1 Topography and Drainage**

#### **3.5.1.1 Topography**

MOTBY contains two distinct but very unequal portions, an artificial peninsula created by filling in part of New York Harbor, approximately 390 acres, and a small approximately 39 acres landward portion that has been land since before 1941. The former extends about 2 miles out into the harbor, with a width of about 1/3 mile while the latter forms a strip varying from approximately 150 to 200 feet in width at the south end to over 700 feet in width at Stanley Boulevard and gradually reducing to approximately 500 feet in width at the north end of the facility. This area is now mainly used for housing (Goldsborough Village), parking, recreation, and utilities, including a large reinforced concrete water reservoir approximately 0.8 acres in extent. The landward area slopes down from over 20 feet above mean sea level (AMSL) at the west to just over 10 feet AMSL at the foot of the slope where it joins a wetland on the area of hydraulic fill at the north side of the facility, and the railroad yard area on the south side. The majority of the peninsula varies only between 10 feet AMSL and 15 feet AMSL and is generally level with very slight slopes. Some 10 acres at the western end of the filled portion has been used as a landfill and has an irregularly mounded surface a little higher than 15 feet AMSL in places. The same holds true for part of the fill along the boundary adjoining the property to the north.

Between the landfill, the former shoreline to the west, and the elevated filled land along the northern facility boundary is a closed depression. This has become a wetland of perhaps 15 to 20 acres in extent, as shown on a 1994 National Wetlands Inventory Survey map (scale 1:6000) prepared by the United States Army Corps of Engineers (USACE), New York District, found in MOTBY files. The wetlands identification and delineation were performed by the USACE New York District (Ref. 38). Although 2-foot contours have been surveyed in and marked on this map they appear not to be tied to the National Vertical Geodetic Datum. The USACE wetlands map shows the location of several monitoring wells. The elevation of the land surface at each monitoring well was surveyed by Dames & Moore

during the RI, but it differs from the estimated land surface elevation as shown by the contours around the wells on the wetlands map by approximately 1.5 feet.

#### **3.5.1.2 Drainage**

Two areas of ponded surface water were noted during the Dames & Moore RI within the wetland area. One is at the outlet of a storm drain discharging from the area of the water reservoir (Ref. 516). The other is in a closed depression close to the northwest edge of the landfill, approximately 200 to 300 feet southwest of well DM-9. The total acreage of wetland, undeveloped scrub and woodland, and the adjoining landfill is approximately 40 acres. It is designated a Wildlife/Bird Sanctuary on the facility map.

The recharge from the landfill is adequate to generate the flow from the spring noted at the northeast corner of the landfill and sampled by Dames & Moore. Recharge over the irregular surface of the landfill, with no evident surface drainage, will be high. The fact that the material underlying the area is fill, and that the vegetation is not climax, will also increase infiltration over evapotranspiration. The placing of an "earthen retaining revetment" across the west end of the North Channel, as shown on the 1995 facility map, has probably been the primary cause of the raised water table behind it that has resulted in the spring breaking out adjacent to the landfill (Ref. 193). The flow of the spring was estimated at approximately 10,000 gallons per day in 1976. Much of the facility shoreline consists of balks (normally a timber constructed wall of bulkheads allowing deep water at the shoreline), except for the west end of the North Channel where the earth revetment is, and the south side of the North Channel which has an irregular slope of fill extending along approximately 2,150 feet from the west end of the channel to 18th Street, where the northern balks begin. There is also a short (1,050 feet) section along the South Channel between the balks along Stanley Boulevard and Berth S-4 where the shoreline is also a steep slope of fill.

The dredged areas adjacent to MOTBY are generally 35 to 37 feet deep, and extend from the Turning Basin in the North Channel (approximately 950 feet in diameter) for approximately 6,700 feet east to the end of the facility along the north side, where berths N-1 to N-5 are located. The dredged area continues between Buoy 14 and Buoy 7 (approximately 2,100 feet apart) across the east end of the facility where berths E-1, E-2, and the dry dock are located (approximately 1,150 feet from bulkhead to bulkhead), and along the south side for 4,400 feet through Berths S-1 through S-4. A smaller turning basin, approximately 800 feet in diameter extends between Berths S-3 and S-4. The remainder of the South and North Channels west of the berths and Turning Basin are much shallower, being less than 10 feet deep on the south side and less than 20 feet deep on the north and exposed at low tide at the

edges. A major storm drain (72 inches in diameter) from the City of Bayonne enters the bay close to the old shoreline just south of the Main Gate by the Visitors Center and another storm drain enters the northwest corner of the North Channel. These create too small a flow to keep the channels open and both channels are becoming more silted except where maintained by dredging.

The MOTBY facility itself is drained by storm drains which discharge directly to the bay. There are 11 northern outfalls beginning on 9th Street, one between 9th and 10th Streets, and on every street west to 18th Street. Dames & Moore also reports a storm sewer at 22nd Street, which receives flow from the spring at the landfill (Ref. 259).

Storm drains around the dry dock area appear to discharge into the bay to the east, and the remainder of the facility discharges storm flow to the South Channel. Storm drain outlets are located at 9th, 10th, 11th, and 12th Streets; at 14th, 15th, 16th, and 17th Streets, halfway between 18th and 19th Streets; and at 20th and 21st Streets. A 675-foot long storm drain collects water from beneath the Recreation Area and the west end of the Railroad Classification Yard, and another collection system drains the Goldsborough Village and Main Gate parking areas to discharge into the South Channel 400 feet east of the Main Gate. A number of other short lengths of storm drain appear to discharge separately to the channel, without connecting to any of the main collectors (Ref. 516).

### **3.5.2 Geology and Hydrology**

#### **3.5.2.1 Geology and Soils**

The bedrock under the east end of MOTBY was reached in a number of deep boreholes drilled by Philip J. Healey, Inc., in 1942. Two boreholes, Numbers 32 and 51, reach "soft mica schist" at 80 feet 6 inches and 83 feet 5 inches below surface, respectively, and another, Number 81, reached "soft rock" at 81 feet 3 inches below surface. Other boreholes just as deep, such as Number 78 (85 feet 6 inches), Number 66 (91 feet) and Number 67 (97 feet) did not encounter bedrock. If these identifications are correct, it would suggest that the outer end of MOTBY rests on what may be Precambrian Manhattan Schist, which also lies north of MOTBY along the New Jersey shoreline under parts of Jersey City. The parts of MOTBY closer to the shore had no deep boreholes encountering bedrock, but they lie along the strike of the outcrop of the Triassic Stockton formation, which is predominantly a light-colored arkosic sandstone with some thin beds of red sandstone and shale (Ref. 917). At the west end of the facility, DM-3 appeared to encounter weathered Stockton formation at approximately 15 feet from surface. South of MOTBY on Staten Island, the



Stockton rests on Staten Island Serpentine (Ref. 918), but no indication of serpentine was found in any borehole at MOTBY.

Generally speaking, the unconsolidated sediments above the bedrock consist of three layers, the glacial outwash sands and gravels, recent estuarine silts, clays and sands, and hydraulic fill. The middle layer (referred to as "river mud" in many of the 1942 borings, but also as "silt" or "silt and clay") is encountered at as little as 7 feet 6 inches below surface in the 1942 boreholes to as much as 24 feet below surface. Some of the sands above this layer may be natural, but most of them are probably hydraulic fill, dredged from the bay. The base of the silt, silty clay, or "river mud" layer is as high as 25 feet 10 inches below surface (Borehole 85), or as deep as 38 feet (Borehole 105), but it occurs within every borehole. Its thickness may be as little as 4 feet to more than 20 feet, but it provides a distinct layer, continuous between the hydraulic fill above and the naturally occurring sands and gravels below, except at the extreme west end of the facility.

At the landward end of MOTBY, the data from the Dames & Moore boreholes for wells DM-1 through DM-13, west of 22nd Street, show the following pattern. DM-3 and DM-4 at surface elevations of 20.98 feet AMSL and 20.5 feet AMSL respectively, show no silt, silty clay, or "river mud" layer and are clearly within the former land area, well above mean high tide, which is 4.65 feet AMSL at present (Ref. 919). Both DM-3 and DM-4 show bottom elevations above sea level and the descriptions of the deepest material encountered implies weathered Stockton Formation materials. Most of the other well logs show the silt layer commencing at between +0.51 feet AMSL (mean low tide level) and mean high tide level. These well logs include DM-4B, -5, -6, -8, -9, -10, and -11. The remaining well logs DM-4C, DM-7, DM-12, and DM-13 show the top of the silt layer below mean low tide level. These data are entirely consistent with hydraulic fill being placed above a layer of seaward sloping mud flats or possibly marsh deposits east of the former shoreline.

If the logs for wells MW-1 through MW-8 in the vicinity of the Boiler Plant USTs are also evidence of the previous levels of the silt and clay layers, some problems arise. The depth from ground surface, as surveyed by Dames & Moore, indicate that on the well logs the silt and clay layer begins between 6.75 feet and 7.0 feet below ground surface, although split spoon samples to confirm this are first taken from 10 to 12 feet below surface in most cases, only in MW-6 is a sample taken from 8 to 10 feet to confirm the transition from sand fill to silty clay. In these wells, the entire screen and sand pack are shown as opposite clay in every case except MW-4. It is difficult to believe that wells completed in this way would yield adequate quantities and quality of water to be acceptable monitoring wells. In any case, the top of clay or silty clay varies from 6.62 feet AMSL to 7.52 feet AMSL, which is well above

the mean level for tides (2.4 feet AMSL) and even above mean high spring tide (5.1 feet AMSL). That soft clays, as recorded in the well logs, were naturally present while exposed to full tidal and wave action appears improbable. It is also notable that the boreholes drilled in 1942 (Boreholes 86, 87, and 88) do not encounter "river mud" until 14.5 feet below ground surface (bgs), 16.33 feet bgs, and 17.25 feet bgs, respectively, even though they are in the same block of buildings as MW-1 through MW-8. It is evident that one or other of the sets of borehole logs is incorrect, and the results from 1942 appear much more plausible. Possibly the material logged as "clay" is in fact fill materials, otherwise it could only have been a mud bank exposed at most states of tide, and yet the material was not encountered by any of the 1942 boreholes at that equivalent depth below surface.

There are no clear soil descriptions of the facility (Ref. 193). USATHAMA quotes Lueder *et al.* 1952, to the effect that the former land area at the far west end of the facility has potentially a range of soil conditions including: "stratified drift, wash from glacial till, recent alluvium, tidal marsh and filled land. Complex intermingling plus obscuring effects of urban development make detailed mapping infeasible." The rest of the facility, being recent hydraulic fill, has not yet developed a soil profile, although this may well be occurring in the Wildlife/Bird Sanctuary area.

### **3.5.2.2 Climate and Hydrology**

#### **Climate**

Two climate stations are close to MOTBY, Newark International Airport, approximately 4 miles west, and Jersey City, approximately 4 miles north. The data for Jersey City show a more maritime and less continental climate which makes it more representative of the facility. The Jersey City data indicate a mean total precipitation of 43.77 inches rainfall equivalent, 28.9 inches of snow, and a mean annual number of 68 days with precipitation greater than 0.1 inches. Temperatures are moderate, with a monthly mean of 52.1°F, mean daily minimum and maximum of 45.7°F and 58.8°F, and temperature extremes of 102°F (July 1966), and 3°F (February 1979). Monthly mean temperatures range from 30.6°F in January to 74.6°F in July.

Rainfall is relatively evenly distributed over the year, with mean precipitation ranging from 2.86 inches in February to 4.30 inches in July, and except for March (4.28 inches), all other months range from 3.26 inches to 3.82 inches. All data are from the period 1951-1980.

## Hydrology

Hydrology at MOTBY is relatively simple. The Bayonne peninsula is a recharge area which discharges east and west into upper New York Bay and Newark Bay, respectively. Although this might affect the landward end of MOTBY, where the water table occurs in the sands and gravels lying above apparent Stockton formation bedrock (Well DM-3), there are no known sources of contamination in this area, and flow is clearly entering the facility from off site at this location.

The remaining area of the site is covered with fill, primarily hydraulic fill (sand and silt) from the floor of Upper New York Bay. This rests on lower permeability "river mud," consisting of silt and silty clay (see Section 3.5.2.1), which forms a continuous layer, ranging from 4 to more than 20 feet thick, with its base below sea level. An unconfined aquifer is created by infiltration from rainfall and snowmelt causing a zone of saturation within the hydraulic fill above the silt and clay. Over much of the facility the high percentage of roofs and paving result in high rates of runoff, and rapid discharge to surface water via the storm drains. The values of runoff coefficient in the Rational Formula (Ref. 920), would suggest that close to 90 percent of rainfall would run off such built up areas. The remainder of the site consists of railroad yards, recreational areas, residential areas, and unimproved areas (the landfill and wetland areas). Runoff coefficients for these would be approximately 20 percent, 20 percent, 40 percent, and probably 20 percent, respectively. The runoff coefficient for the landfill and wetland would be low because the area is mostly a closed depression. Discharge from the spring northeast of the landfill was estimated to be 10,000 gallons per day, which is equivalent to 33 percent of the precipitation falling on the 20-acre landfill area.

An approximate estimate of 24 inches per year is used as maximum probable evapotranspiration from vegetated areas. This is based on river gauging data for nearby surface streams in New Jersey with comparable rainfall. For example, the average flow of the Saddle River at Lodi, New Jersey is 102 cubic feet per second ( $\text{ft}^3/\text{s}$ ), which is equivalent to 25 inches per year of groundwater recharge and surface runoff over the watershed above the gauging point. Since  $\text{Precipitation} = \text{Runoff} + \text{Recharge} + \text{Evapotranspiration}$  and precipitation is in the range of 44 to 48 inches per year, actual evapotranspiration is approximately 19 to 23 inches per year on average. Similar calculations for Stoney Brook at Princeton and Green Brook at Plainfield yield actual evapotranspiration figures of approximately 24 inches per year and 26 inches per year, respectively, for these watersheds.

The relatively poor vegetative cover on the hydraulic fill areas of MOTBY suggests that evapotranspiration would be lower than that of the Stoney Brook watershed and perhaps higher than that of a largely urban watershed such as Green Brook's. An approximate

estimate of recharge to the saturated zone in the hydraulic fill can be created using the factor for precipitation, runoff, and evapotranspiration. Table 3-2 lists the factors used.

Because of the distribution of land cover types, most of the recharge, and hence most of the groundwater discharge to surface water will occur within the west end of the site. As an approximate estimate, 32 million gallons of groundwater will discharge each year to the North Channel west of 18th Street (over 3,800 linear feet of shoreline), 26 million gallons will discharge to South Channel west of 18th Street (over 5,500 linear feet), and the remaining 31 million gallons per year will discharge across the entire eastern perimeter of the site (over approximately 7,100 linear feet). Overall average flow rate per linear foot is approximately 15 gallons per day per foot. At the west end of the North Channel, the average discharge would be 23 gallons per day per foot. At the west end on the south side of the site the average discharge would be approximately 18 gallons per day per foot, and over the remainder of the site east of 18th Street the average discharge would approximate 9 gallons per day per foot. The spring flow north of the landfill (estimated at 10,000 gallons per day) must be considered part of the northern groundwater discharge, but only amounts to the equivalent of 2.6 gallons per foot per day of the discharge to the west end of the North Channel.

Surface runoff from MOTBY amounts to approximately 910,000 gallons per day and will mostly discharge through the storm drain outfalls of which there are at least 25, so each averages 36,000 gallons per day, but this must vary significantly between the larger collections in the warehouse area to smaller ones such as the collector draining the recreation area and the west end of the railroad classification yard. Most outlets are submerged at high tide, so the discharges are not necessarily conspicuous. A major storm, such as one causing 3 inches of rain in 24 hours, could produce more than 20 million gallons of runoff from roofs and roads alone, resulting in flows of more than one million gallons per day per storm drain, which would amount to over 800 gallons per minute for each outfall at the east end of the site.

The silts and silty clays beneath the unconfined aquifer are of low hydraulic conductivity, and well pairs such as DM-1 and DM-2 show vertical hydraulic gradients range from negligible to 0.27 feet/foot (Refs. 259, 260), which evidently depends partly on the state of the tide at the time of measurement. This is because the sands and gravels below the silt and silty clay are confined and fully saturated, being below sea level. They are also directly in contact with the water in both the North Channel and the South Channel, since the dredging depth is below the base of the clay layer, and so reflect the state of the tide. This is demonstrated not only by the chloride levels in the deeper wells (see Table 3-3), but also by

their response to tidal fluctuations (see Figures 3-2 and 3-3). DM-2 (approximately 3,200 feet from the nearest dredged area) fluctuated over approximately 0.8 feet twice daily, and DM-11 (approximately 2,300 feet from the nearest dredged area) fluctuated over approximately 1.0 to 1.2 feet twice daily. The tidal fluctuations do not account for the full vertical hydraulic gradients, since these also reflect seasonal changes in hydraulic head both in the confined aquifer and in the unconfined aquifer, which are in hydraulic connection with the aquifers under the Bayonne peninsula. The contribution of flow to the confined aquifer both from the unconfined aquifer through the confining layer, and from the landward side, is reflected in the lower salinity of the water from the deeper wells than is found in the harbor.

### **Salinity of Groundwater**

The water quality of the unconfined aquifer (based on the shallow monitoring wells, excluding anomalous well DM-4C) varies from fresh, in most wells, to brackish, in MW-8, with a chloride range of 13.1 parts per million (ppm) to 2,430 ppm, and an average level of 486 ppm. Total dissolved solids (TDS) range from 155 to 1,520 ppm with an average of 565 ppm.

The three deeper wells completed in the lower sands, DM-2, DM-7, and DM-11, show a range of chloride from 2,840 mg/L to 8,800 mg/L with an average of 4,333 mg/L. TDS ranges from 3,440 mg/L to 14,400 mg/L with an average of 7,770 mg/L.

DM-4C is anomalous. It was intended to be a deep well but struck an obstruction at 23 feet bgs and was completed at that depth, within the silt and silty clay layer. This well has a chloride level of 12,600 mg/L and a TDS level of 19,200 mg/L. The obstruction it struck may have been a sunken barge, which could explain the unusually high level of chloride at a relatively shallow depth, for example if the barge forms an enclosure which is not flushed by water percolating from the surface.

### **Hydrology of the West End**

The number and density of monitoring wells at the west end of the facility around RI Sites 1, 2, 4, and 9, permits a more detailed evaluation of the hydrology in this area. The discussion below is based on the groundwater elevation data from Dames & Moore. It should be noted that there is a discrepancy of this data with the land elevations from a 1994 USACE delineation. See Section 3.5.1.1 for discussion

All the above sites are at the west end of the facility and are part of a single groundwater system. Figure 3-4 shows the configuration of the water table, which occurs primarily in the hydraulic fill above the former bay bottom sediments or "river mud" of the

well logs, although DM-3 is completed within the glacial outwash and Stockton formation weathered bedrock west of the former shoreline. A groundwater divide runs along the MOTBY peninsula both through Site 2, and the south end of Site 9. Groundwater in the hydraulic fill is primarily generated by on-site infiltration. Three wells are installed into glacial outwash sands and gravels beneath the former bay bottom sediments and DM-4C is completed within the "river mud" just beneath the hydraulic fill. It is clear that the vertical hydraulic gradients are significant, and that using the hydraulic head of an isolated deep well such as DM-7 cannot give a good approximation for the water table elevation.

The result of this evaluation of the groundwater flow is to establish that relative to Site 1, the following wells represent background data: DM-3 and DM-13. Only DM-9 and DM-10 represent downgradient conditions, but the spring may represent the great majority of groundwater from underneath the landfill.

At Site 2, wells DM-5 and DM-6 represent on-site groundwater. Well DM-1 represents downgradient conditions.

Wells DM-14, DM-15, DM-16, and DM-17 represent on-site conditions at Site 9 and DM-14 and DM-15 are also representative of background conditions for Site 4.

### **3.5.3 New York Harbor: Surface Water Quality**

The Hudson-Raritan Estuary is currently subjected to an enormous loading of municipal and industrial wastewater and non-point runoff from the 16,300 square-mile drainage area. In 1991, of the average fresh water inflow to the Harbor of approximately 27,000 ft<sup>3</sup>/s (765 cubic meters per second (m<sup>3</sup>/s)), approximately 80.7 percent is from tributaries, 14.9 percent is from municipal point sources, 3.7 percent is from stormwater, 1.3 percent is from combined sewer overflows (CSOs), and 0.3 percent is from direct industrial discharges. Of the estimated 5,300 ft<sup>3</sup>/s (150 m<sup>3</sup>/s) from non-tributary sources, 72.8 percent is from 49 municipal point sources; 18.9 percent is from over 1,000 storm water outfalls; 6.7 percent is from approximately 650 CSO outfalls and 1.5 percent is from approximately 400 direct industrial dischargers. Note that "Harbor" boundaries in this case extend to Poughkeepsie on the Hudson River, to Throgs Neck in the East River, to the head-of-tide on the New Jersey tributaries, and to the Sandy Hook-Rockaway transect (Ref. 916).

The impact of the very large discharges of municipal point sources, direct industrial sources and influxes from rivers, streams, and the atmosphere can be seen from the data in Table 3-4. This shows levels of organics and metals in the tissue of the common mussel, *Mytilus edulis*, and on sediments in New York Harbor, Upper Bay.

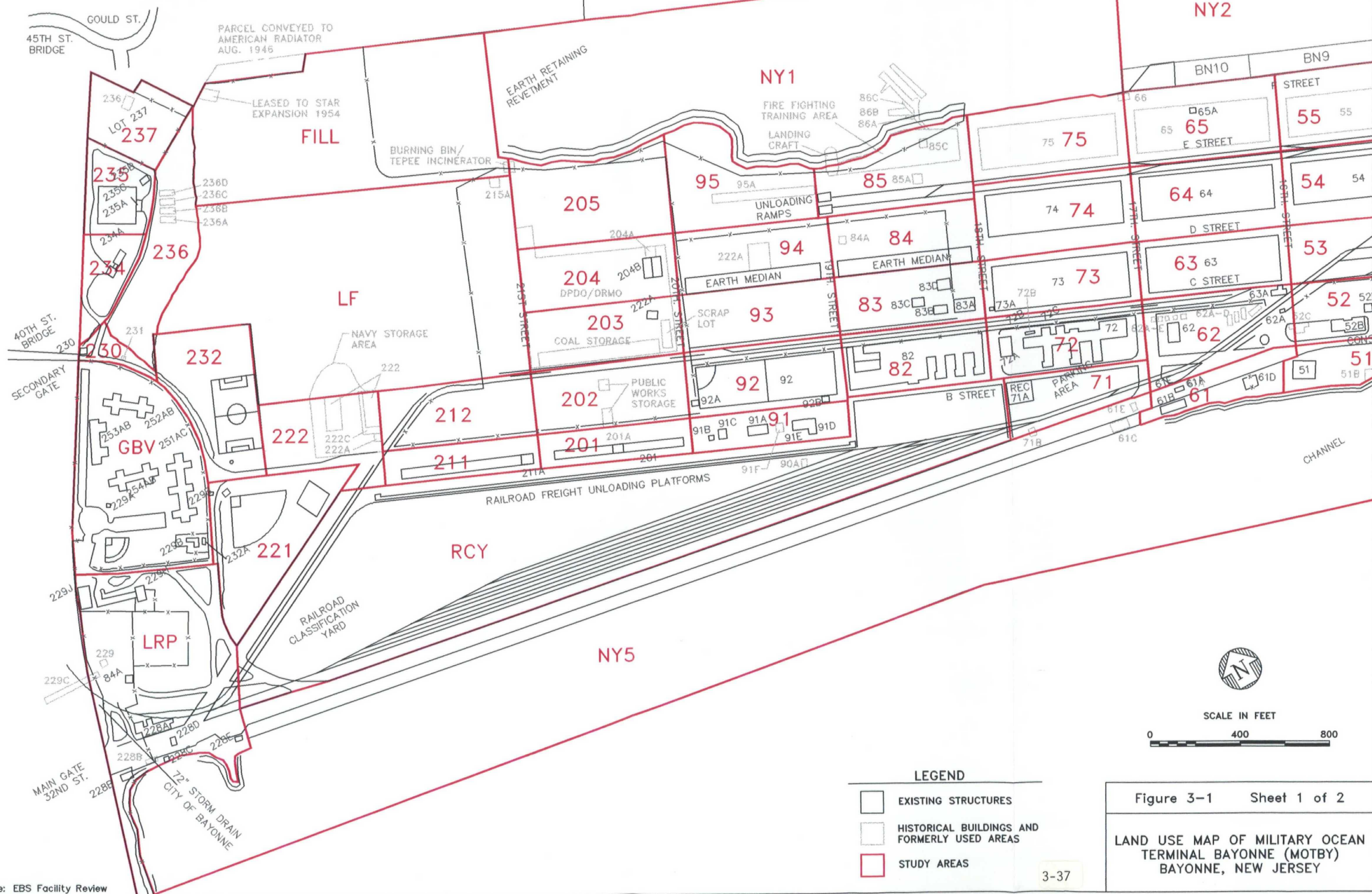
Water quality in New York Harbor has been improving. The closest station to MOTBY is Robbins Reef, which lies within 2,000 feet of the east end of MOTBY. The water quality measurements and trends at Robbins Reef are summarized in Table 3-5.

The total volume of groundwater discharged yearly from under the facility, approximately 90 million gallons per year, is only one twenty-eighth part of the approximate volume of the dredged channels immediately adjacent to MOTBY. These channels are also constantly exchanging water as the result of tides, current, and waves, and are receiving deposits of sediments from atmospheric fallout, and influxes both from MOTBY and other shoreline sources, as well as by erosion of adjoining mudflats. At intervals the channels are redredged to maintain depth. The result of all these fluxes and changes is that any attempt to measure the impact of MOTBY groundwater on New York Harbor is profoundly difficult. For comparison, Table 3-6 shows the effluent loadings of metals to New York Harbor from publicly owned treatment works during 1985 and 1993 in pounds per day.

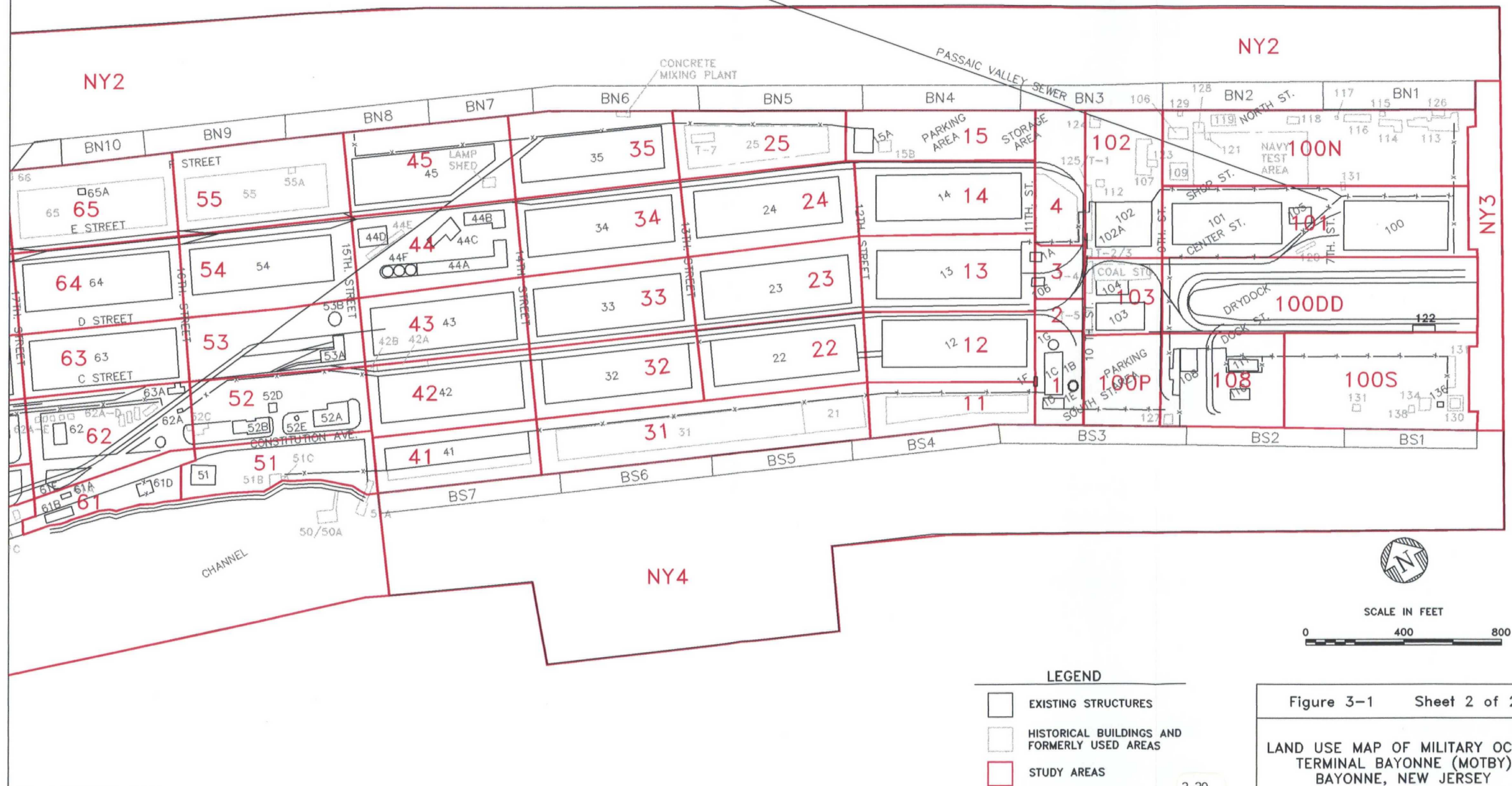
The nearest available sampling point for harbor water quality is at the east end of Kill Van Kull, north of Staten Island (Sampling Location A6) (see Table 3-7). Based on the comparability of general water quality parameters between this location and MOTBY, these data should be similar to the water quality data to be expected adjacent to MOTBY. If the volume of seawater in the dredged channels adjacent to MOTBY is approximately 9.5 billion liters and its average dissolved metals content is as shown in Table 3-7, the mass of metal contained would be cadmium, 0.58 kilograms; copper, 16.2 kilograms; mercury, 0.039 kilograms; nickel, 12.4 kilograms; lead, 2.2 kilograms; and zinc, 55.1 kilograms. It also has to be borne in mind that the entire MOTBY peninsula was constructed of hydraulic fill from the bottom of New York Harbor, which had already (by 1941 and later) been exposed to accumulating impacts of at least a century of pollution from artificial sources.

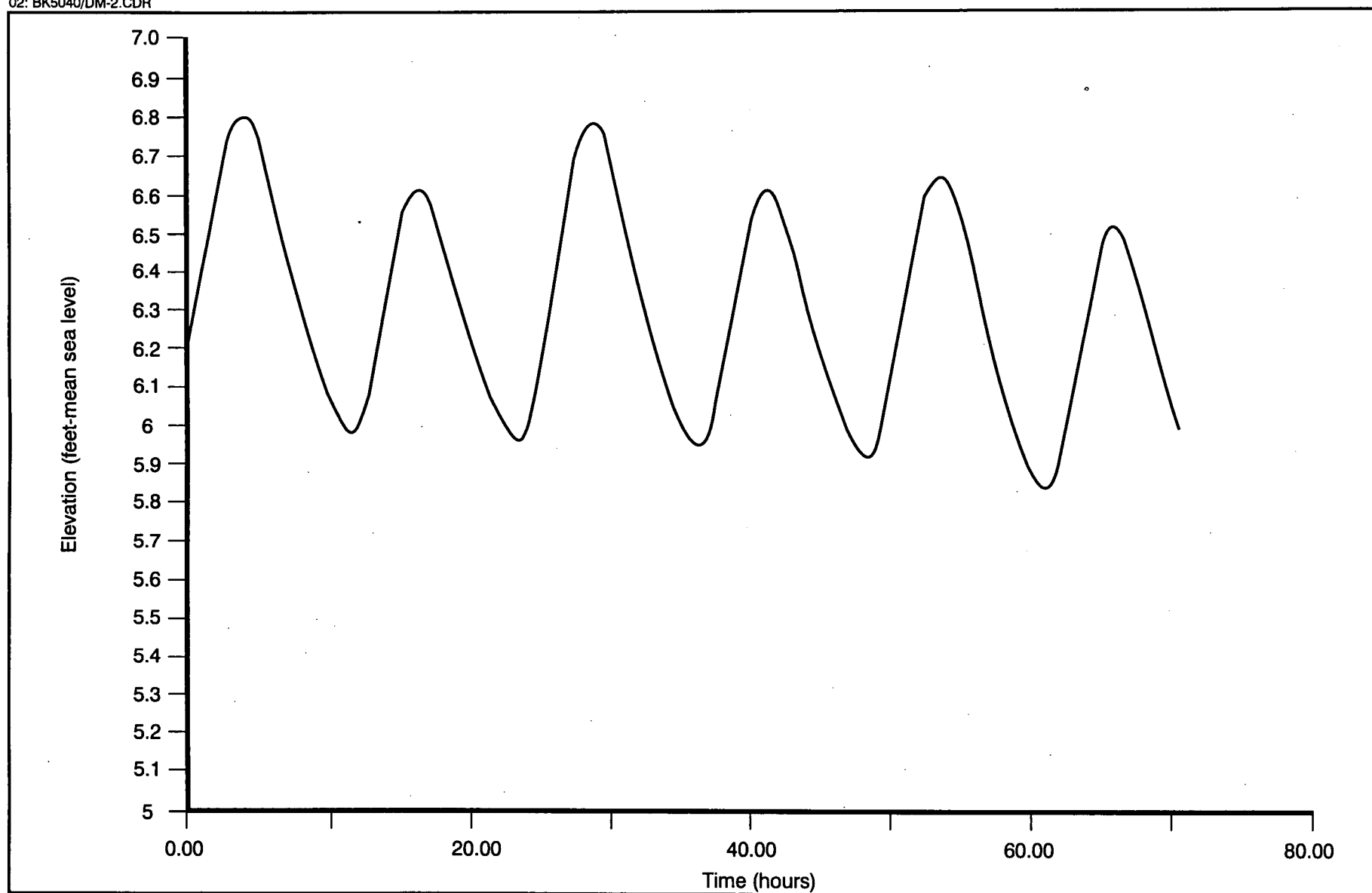
The channels dredged around MOTBY have made any attempt to assess the impacts of the site on sediments impractical within the dredged area. Only the southwestern shoreline of the peninsula has extensive relatively undisturbed sediments, and these have been inevitably impacted by the activities on the heavily industrialized south side of the inlet on Constable Hook.





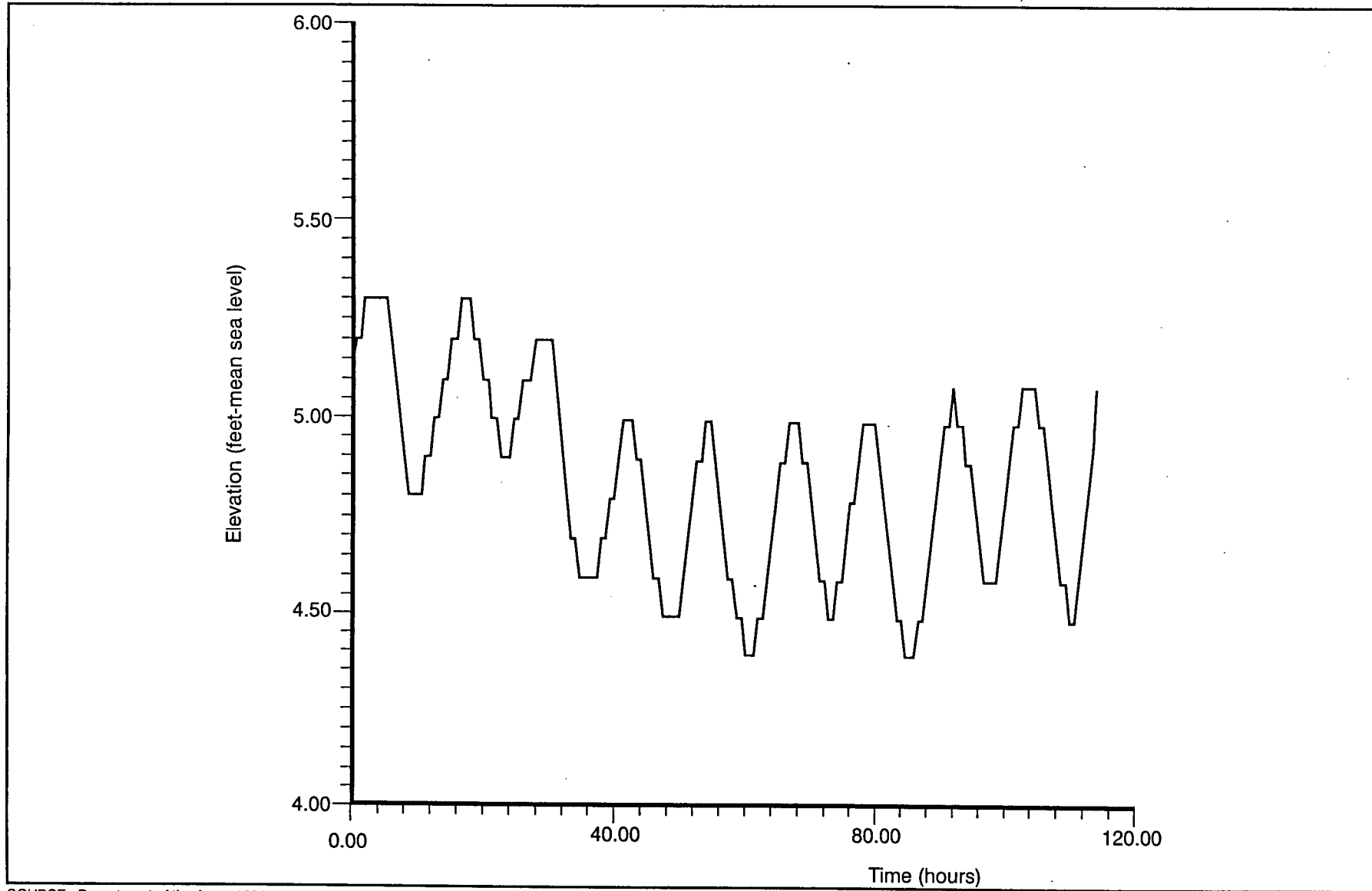






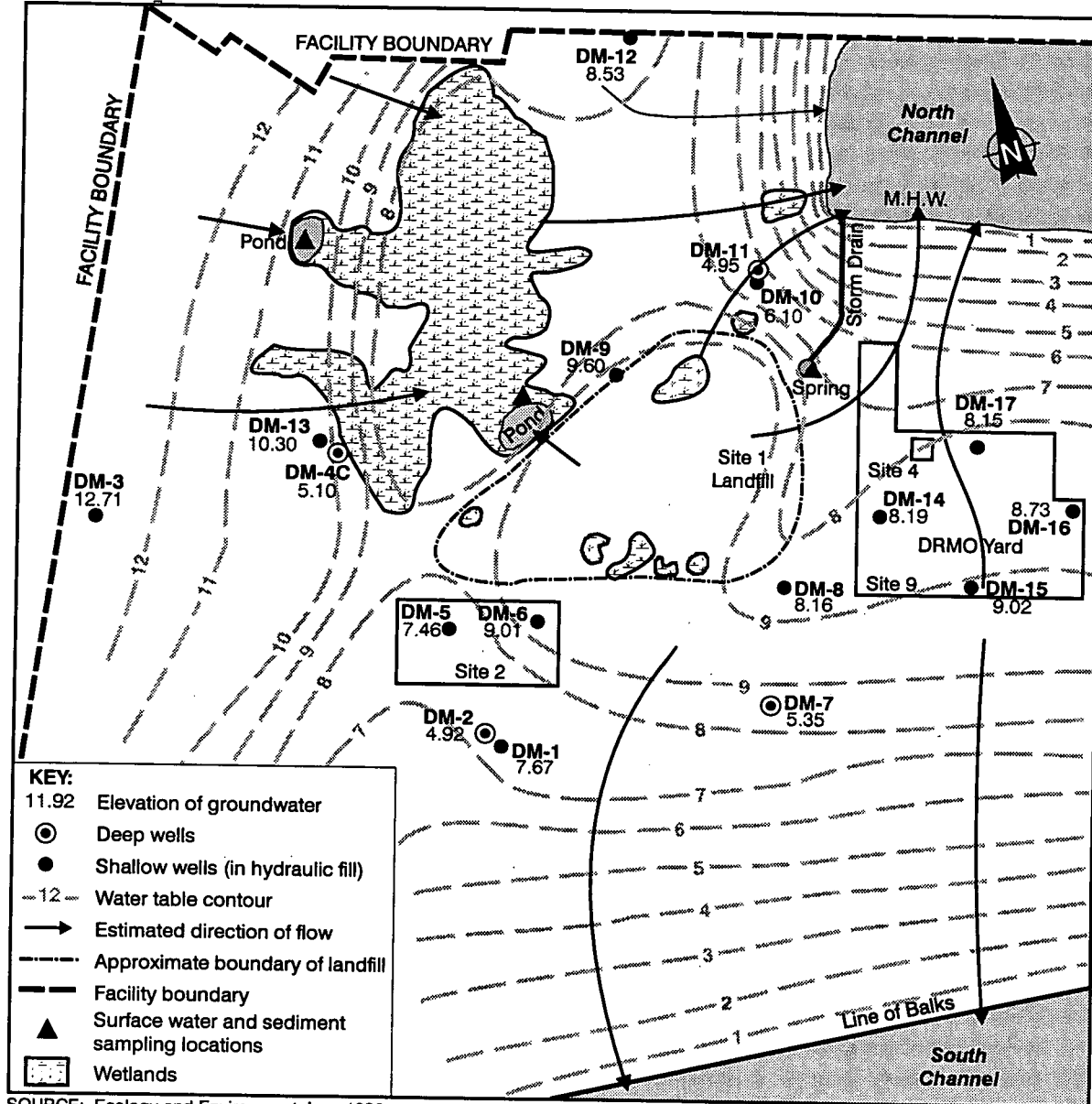
SOURCE: Department of the Army, 1994.

**Figure 3-2 TIDAL FLUCTUATIONS IN WELL DM-2  
MOTBY-USATHAMA, BAYONNE, NJ**



SOURCE: Department of the Army, 1994.

**Figure 3-3 TIDAL FLUCTUATIONS IN WELL DM-11 (AS MEASURED FROM 1715 ON 2-25-88 THROUGH 1100 ON 3-1-88)  
MOTBY-USATHAMA, BAYONNE, NJ**



SOURCE: Ecology and Environment, Inc., 1996

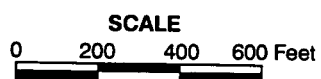
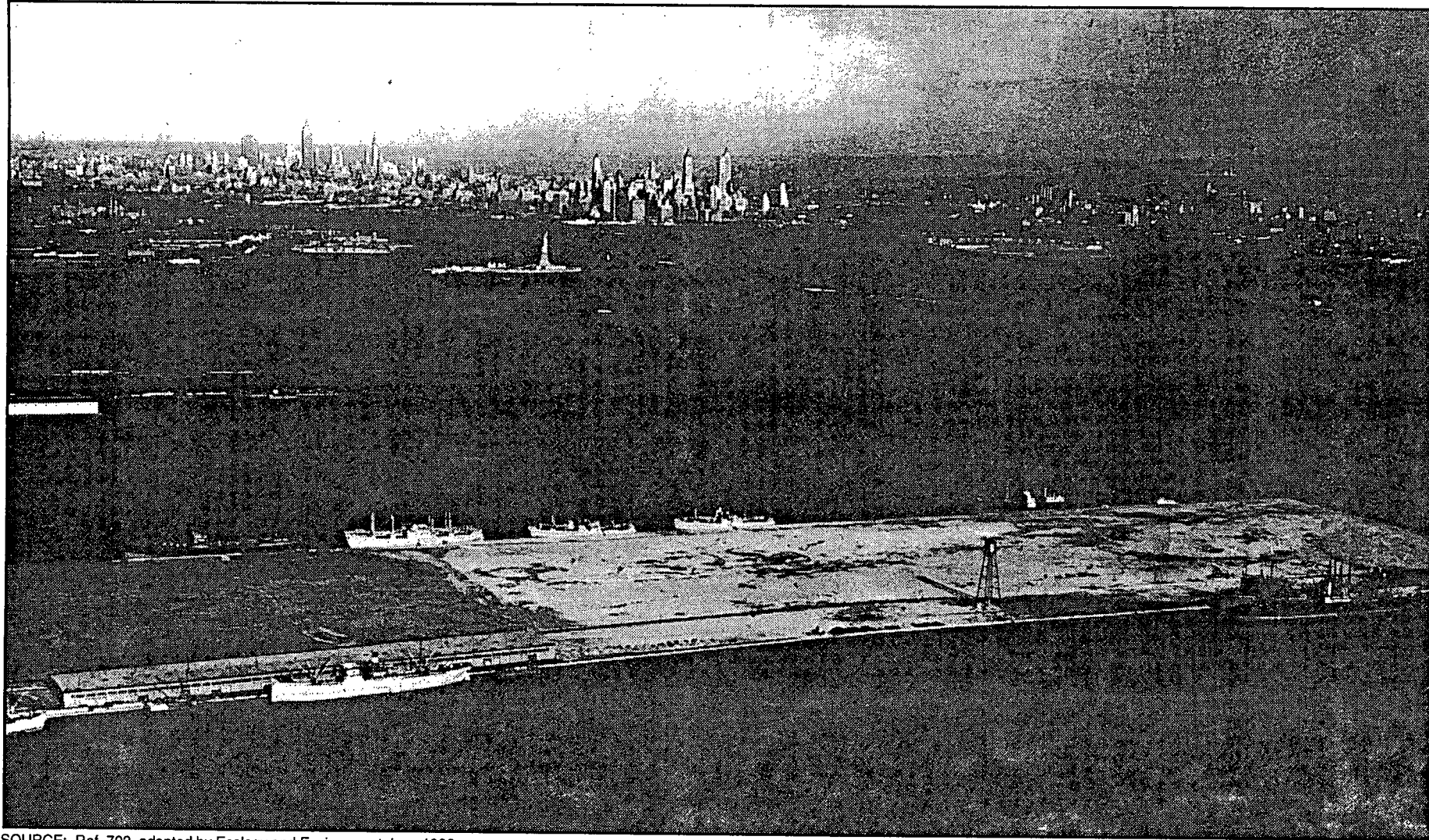


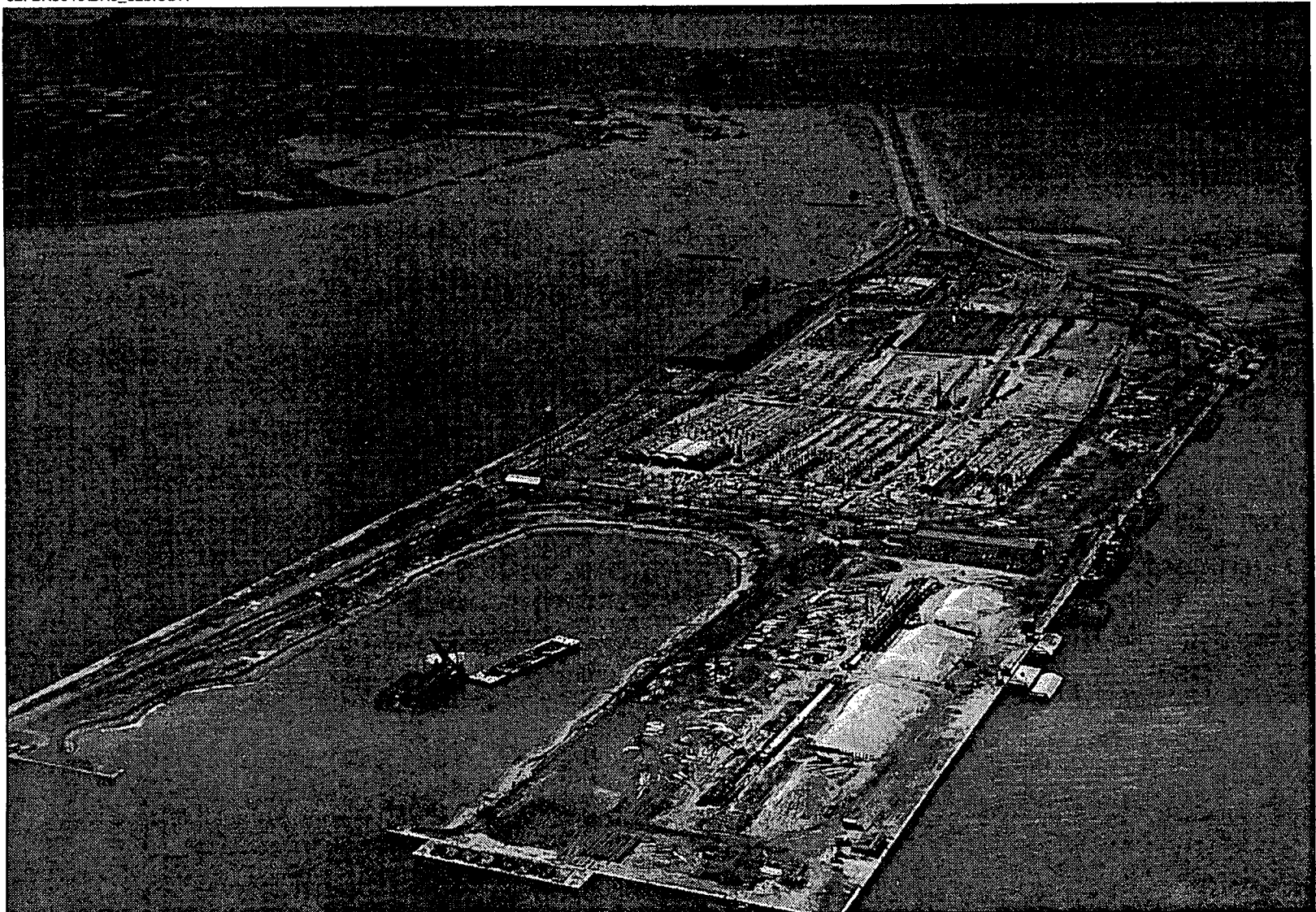
Figure 3-4 HYDROLOGY OF THE WEST END OF MOTBY (9/26/94)





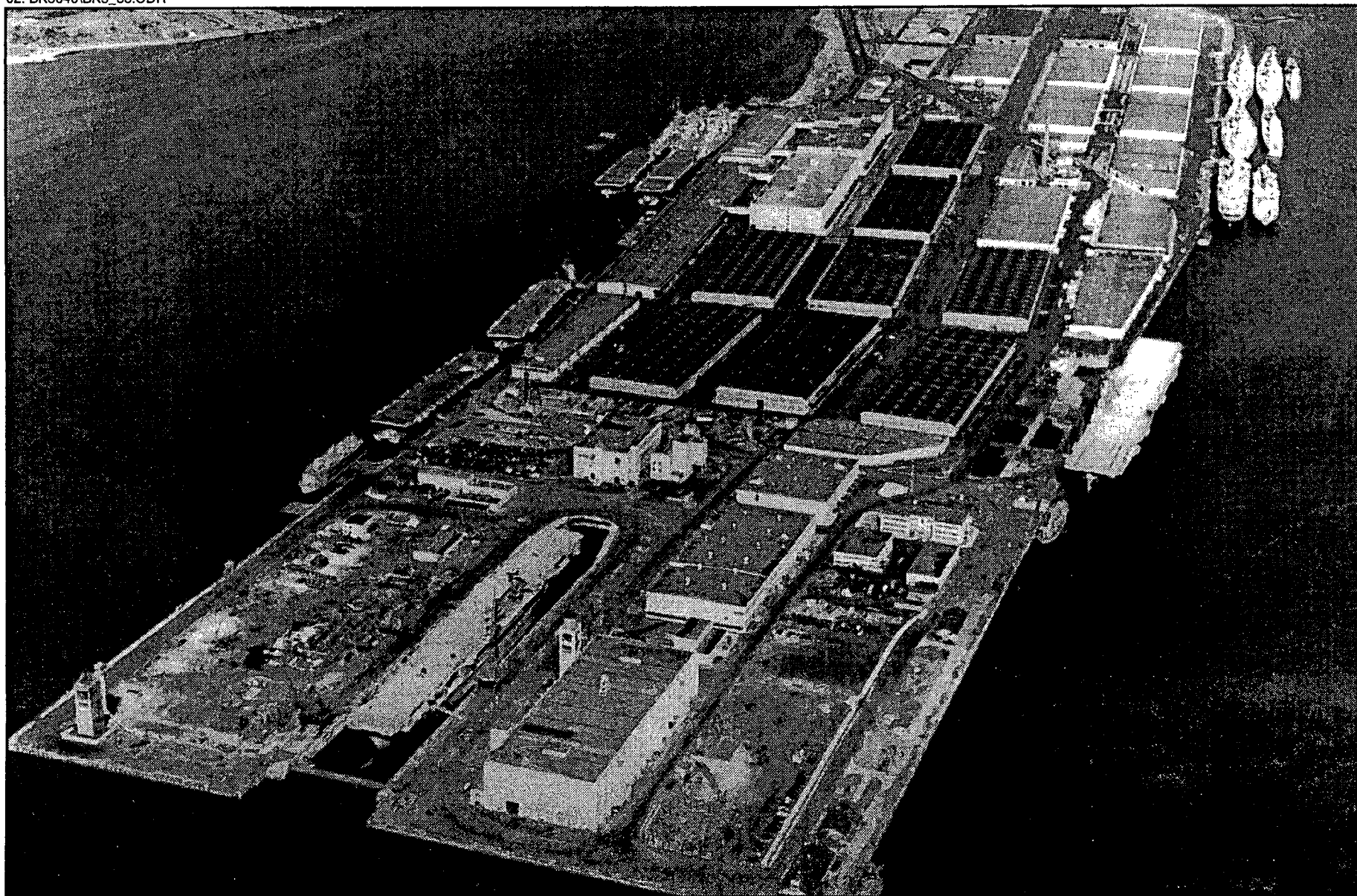
SOURCE: Ref. 702, adapted by Ecology and Environment, Inc., 1996.

**Aerial Photograph 3-1    BAYONNE PORT TERMINAL, BAYONNE, NEW JERSEY, MARCH 1941**



SOURCE: Ref. 703, adapted by Ecology and Environment, Inc., 1996.

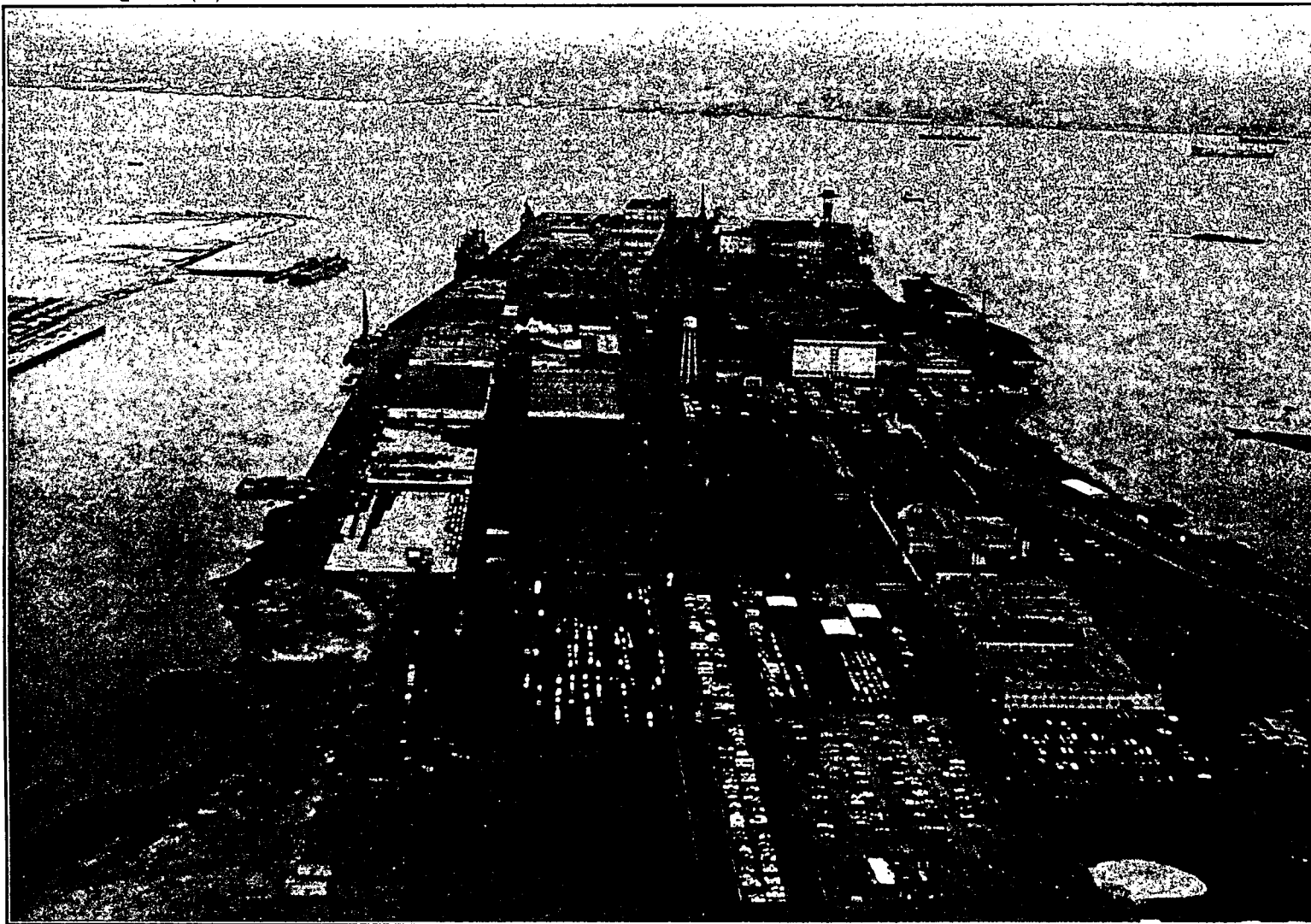
**Aerial Photograph 3-2 U.S. NAVAL SUPPLY DEPOT, BAYONNE, NEW JERSEY, AUGUST 1941**



SOURCE: Ref. 706, adapted by Ecology and Environment, Inc., 1996.

**Aerial Photograph 3-3    NAVAL SUPPLY DEPOT BAYONNE, BAYONNE, NEW JERSEY, EARLY 1950s**



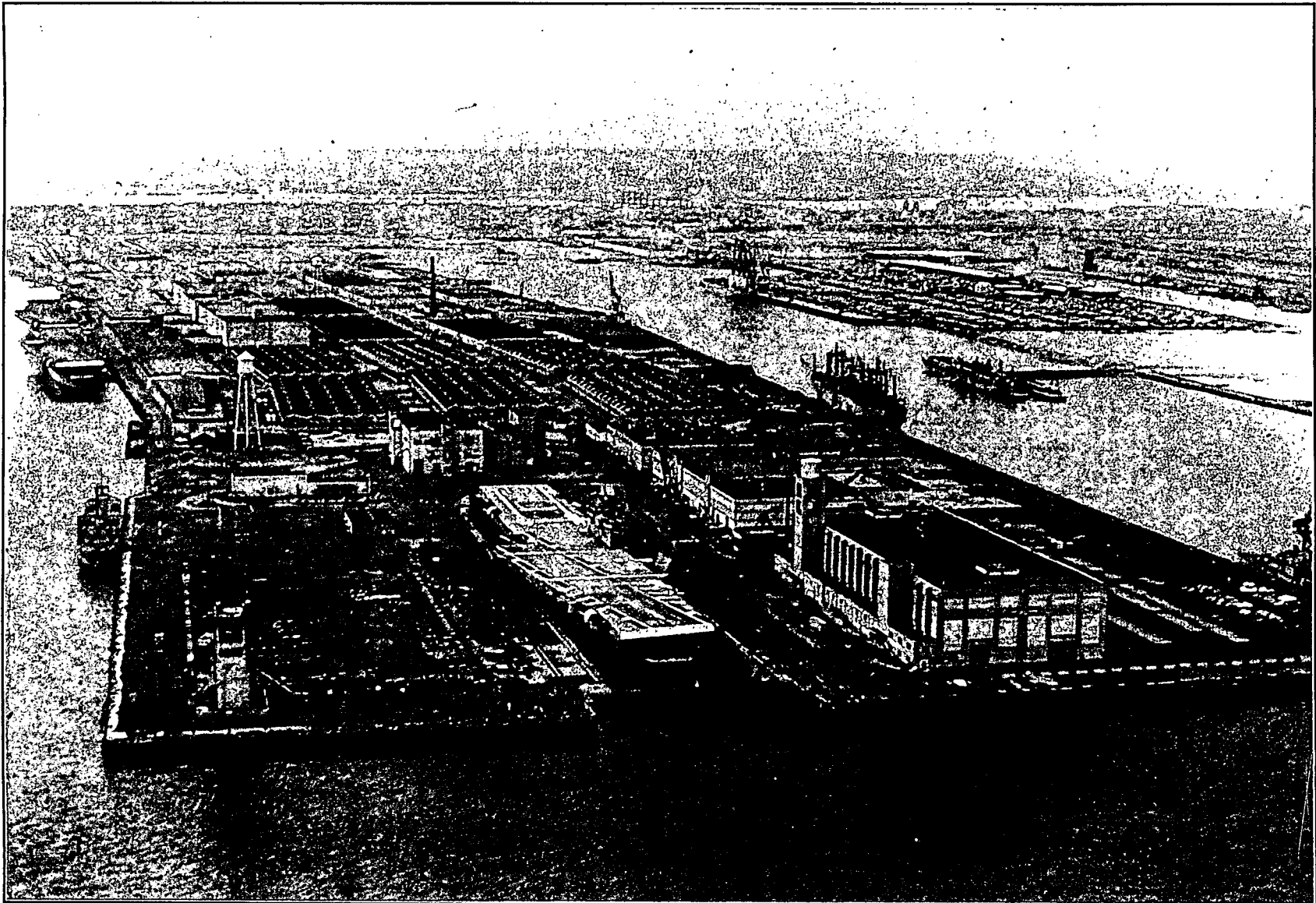


SOURCE: Ref. 709, adapted by Ecology and Environment, Inc., 1996.

Aerial Photograph 3-4

MILITARY OCEAN TERMINAL, BAYONNE (MOTBY)  
BAYONNE, NEW JERSEY, NOVEMBER 1973





SOURCE: Ref. 709, adapted by Ecology and Environment, Inc., 1996.

**Aerial Photograph 3-5    MILITARY OCEAN TERMINAL, BAYONNE (MOTBY)  
BAYONNE, NEW JERSEY, DECEMBER 1973**



SOURCE: Ref. 715, adapted by Ecology and Environment, Inc., 1996.

**Aerial Photograph 3-6    MILITARY OCEAN TERMINAL, BAYONNE (MOTBY)  
BAYONNE, NEW JERSEY, 1994**

Table 3-1	
NSRDF Milestones	
April 1, 1949	Naval Supply Research and Development Facility (NSRDF) established as a separate entity from the Navy Supply Corps School, but still responsible to the Supply Officer in Charge, Navy Supply Corps School, Bayonne New Jersey. Mission to conduct research into logistic matters as assigned by the Bureau of Supplies and Accounts; conduct research and development in supply engineering issues; and in subsistence related to shipboard use.
January 31, 1950	All R&D functions performed by clothing, subsistence and storage divisions elsewhere in the Navy were canceled as of this date, and the NSRDF was tasked on February 20, 1950 to operate as the sole control and clearance point for all R&D matters.
January 1, 1957	Logistic research responsibilities transferred to the Bureau of Supplies and Accounts.
September 1, 1958	Functions and personnel (military and civilian) of Research and Development Division, Navy Clothing and Textile Office, Brooklyn New York were transferred to the NSRDF, without any change in physical location.
July 1, 1961	NSRDF assumed technical functions related to specifications and standardization for FSC classes 7330, 40, 50, 7920 and FSC group 75.
December 21, 1961	NSRDF assumed standardization responsibilities for many more FSC classes.

<b>Table 3-2</b> <b>FACTORS USED TO ESTIMATE RECHARGE TO THE SATURATED ZONE</b> <b>IN THE HYDRAULIC FILL</b>				
<b>Cover Type and Area</b> (feet <sup>2</sup> x 1,000)	<b>Precipitation</b> (thousand gals/yr)	<b>Runoff</b> (thousand gals/yr)	<b>Evapotranspiration</b> (thousand gals/yr)	<b>Recharge</b> (thousand gals/yr)
Paved/Roofs 13,700	373,780	(80%) 299,020	(10%) 37,378	(10%) 37,378
Railroad yards 1,100	30,010	(30%) 9,003	(10%) 3,001	(60%) 18,006
Recreational 900	18,420	(20%) 3,684	(45%) 8,289	(35%) 6,447
Residential 1,100	30,010	(50%) 15,005	(40%) 12,004	(10%) 3,001
Unimproved 2,000	54,570	(10%) 5,457	(45%) 24,556	(45%) 24,556
<b>Total Area</b> 18,800	<b>Total Precipitation</b> 506,790	<b>Total Runoff</b> 331,169	<b>Total Evapotranspiration</b> 85,228	<b>Total Recharge</b> 89,388

<b>Table 3-3</b> <b>WELL DEPTH AND SALINITY RELATIONSHIPS AT</b> <b>MOTBY</b>				
<b>Well ID</b>	<b>Chloride (ppm)</b>	<b>Total Dissolved Solids (ppm)</b>	<b>Well Depth (Feet)</b>	<b>Distance inland (feet)</b>
MW1	231	641	17	430
MW2	779	2,060	17	430
MW3	189	739	17	430
MW5	175	627	17	430
MW6	561	1,480	17	430
MW6D	546	1,430	17	430
MW7	155	549	17	430
MW8	1,070	2,430	17	430
DM1	89	552	14	1,000
DM2	8,880	14,400	46	1,000
DM3	548	1,520	14	1,800
DM4C	12,600	19,200	23	1,870
DM5	162	643	14	1,300
DM6	176	556	14	1,300
DM7	1,360	3,440	49	930
DM8	379	1,440	14	1,050
DM9	98	354	14	750
DM10	133	478	14	250
DM11	2,840	5,470	43	250
DM12	13	453	15	550
DM13	385	1,180	15	1,480
DM14	23	510	14	800
DM15	24	662	14	970
DM16	75	666	14	760
DM17	59	532	14	590

Source: Ref. 259, 260.

Table 3-4

**SUMMARY OF 1986 TO 1988 DATA ON ORGANICS AND METALS IN *MYTILUS EDULIS* AND IN  
SEDIMENTS COLLECTED IN 1984, 1986, AND 1987 FROM UPPER BAY,  
NEW YORK HARBOR (NOAA 1989 AND 1991)**

Parameter	Mytilus edulis Tissue (ng/g dry weight)					Sediment (ng/g) <sup>1</sup>		Notes
	1986	1987	1988	Mean	CV <sup>2</sup>	Mean	CV	
ORGANICS								
Total PCBs <sup>3</sup>	3,300	1,600	2,500	2,500	41	320*	86	
LMW PAHs <sup>4</sup>	4,900	2,200	560	2,600	81	19,000*	136	Decreasing
HMW PAHs <sup>5</sup>	15,000	11,000	6,700	11,000	38	38,000*	112	Decreasing
Total PAHs	--	--	--	--	--	57,000*	120	
DDT	190	240	380	270	45	33	101	Increasing
Chlordane	71	53	73	66	28	11	90	
Dieldrin	60	43	4.7	36	85	6.8	77	Decreasing
Hexachlorobenzene	1.1	0.43	0.67	0.74	--	1.1	97	
Lindane	0.87	0.27	ND	0.38	--	1.4	127	Decreasing
Mirex	3.6	5.4	ND	3	80	4.5	140	
METALS								
Arsenic	9.5	9.5	10	9.7	6	35*	56	
Antimony	--	--	--	--	--	6.6	48	3 Samples Only
Cadmium	9.3	16.0	7.5	11	34	2.3*	70	
Chromium	11	8.6	14	11	23	190*	57	
Copper	17	20	25	21	19	220*	67	Increasing

Table 3-4

**SUMMARY OF 1986 TO 1988 DATA ON ORGANICS AND METALS IN *MYTILUS EDULIS* AND IN  
SEDIMENTS COLLECTED IN 1984, 1986, AND 1987 FROM UPPER BAY,  
NEW YORK HARBOR (NOAA 1989 AND 1991)**

Parameter	<i>Mytilus edulis</i> Tissue (ng/g dry weight)					Sediment (ng/g) <sup>1</sup>		Notes
	1986	1987	1988	Mean	CV <sup>2</sup>	Mean	CV	
Lead	14	28	22	21	45	260*	61	
Mercury	0.47	0.59	0.69	0.58	17	4.6*	66	Increasing
Nickel	4.6	6.7	8.2	6.5	25	60	36	Increasing
Selenium	3.3	4.1	3.6	3.7	15	2	84	
Silver	1.9	1.6	1.7	1.7	22	5*	69	
Tin	1.6	0.35	ND	--	--	72*	155	Decreasing
Zinc	130	220	160	170	24	410*	56	
<b>GENERAL</b>								
Percent fines	--	--	--	--	--	67	27	
TOC <sup>6</sup> percent dry	--	--	--	--	--	4.2	54	

1 Data from five samples (except as noted) normalized for fines (silt and clay) content.

2 Coefficient of variation in percent.

3 Polychlorinated biphenyls.

4 Low Molecular Weight Polyaromatic Hydrocarbons (one to three benzene rings).

5 High Molecular Weight PAHs.

6 Total Organic Carbon.

ng/g = nanograms per gram.

\* Value greater than one standard deviation above the mean of the National Status and Trends Data Base Values.

Sources: Ref. 914, 915.

Table 3-5			
WATER QUALITY MEASUREMENTS AND TRENDS AT ROBBINS REEF (NYCDEP 1994)			
Parameter	Average Values Summer 1993		Trends/Notes
	Surface Water	Bottom Water	
Dissolved oxygen (mg/L)	6.4	6.3	Improving
Fecal Coliforms (per 100 ml)	48	22	Improving
Total Coliforms (per 100 ml)	324	147	Improving
pH	7.52	7.59	
Salinity (PSU) <sup>1</sup>	24.5	27.8	
Chloride <sup>2</sup> (%)	13,560	15,390	
Temperature °C	21.3	19.5	
Ammonia (mg/L)	0.38	—	None/Average of both
Nitrate/Nitrite (mg/L)	0.287	—	None/Average of both
TDIN <sup>3</sup> (mg/L)	0.669	—	Average of both
Total Phosphorus (mg/L)	0.138	—	Improving
Orthophosphate (mg/L)	0.102	—	Improving

1 PSU = Practical Salinity Units.

2 Calculated from PSU from Dietrich *et al.* 1980.

3 TDIN = Total dissolved inorganic nitrogen.

mg/L = milligrams per liter.

ml = milliliters.

Source: Ref. 916.



Table 3-6				
METAL LOADINGS TO NEW YORK HARBOR FROM PUBLICLY OWNED TREATMENT WORKS (1985 AND 1993)				
Parameter	1985 pounds/day	1993 pounds/day	Net Decrease pounds/day	Percent Decrease
Arsenic	151	5	146	97
Cadmium	31	4	27	88
Chromium	583	78	505	87
Copper	2,228	478	1,750	79
Mercury	30	3	27	90
Nickel	571	94	477	84
Lead	458	87	371	81
Zinc	1,940	628	1,312	68

Source: Ref. 916.

<b>Table 3-7</b> <b>NEW YORK HARBOR WATER QUALITY AT</b> <b>EAST END OF KILL VAN KULL (<math>\mu\text{g/L}</math>)</b>	
<b>Parameter</b>	<b>1/91 Dissolved</b>
Arsenic	NA
Cadmium	0.061
Chromium	NA
Copper	1.71
Mercury	0.0041
Nickel	1.31
Lead	0.232
Zinc	5.8
Dissolved Organic Carbon	1.96 (mg/L)
Total Suspended Solids	9.22 (mg/L)

NA = Not Analyzed.  
 mg/L = milligrams per liter.

Source: Ref. 921.

### 4.1 Hazardous Materials and Waste (Other than Petroleum)

Both current and former aspects of hazardous materials and waste management at MOTBY were researched as part of the EBS. This section presents storage and disposal areas, documented releases, and relevant investigations and remedial actions to date. Items associated with POLs, which are classified as hazardous materials in the state of New Jersey, are presented in Section 4.2.

The text within this section provides an overview of the principal storage and disposal areas. Sections 4.1.1 and 4.1.2 provide discussions of hazardous materials and hazardous waste storage areas, respectively. Documented hazardous releases and hazardous waste disposal areas are presented in Sections 4.1.3 and 4.1.4. Finally, Section 4.1.5 provides a summary of remedial actions to date associated with the items identified in Sections 4.1.1 through 4.1.4. Appendix C provides six inventories associated with hazardous materials and waste, including: Table C-1-1, Hazardous Material Storage Areas; Table C-1-2, Types and Quantities of Hazardous Material; Table C-2-1, Hazardous Waste Storage Areas; Table C-2-2, Types and Quantities of Hazardous Waste; Table C-3, Hazardous Material/Waste Releases; and Table C-4, Hazardous and Petroleum Waste Disposal Areas. In addition, Figures C-1 through C-4 present item locations. For a reference map showing building locations see Figure 3-1.

#### 4.1.1 Hazardous Materials Storage

Currently, a variety of hazardous materials are stored in varying quantities at MOTBY. These materials are stored as a result of shipping operations or to support operations and activities at the terminal. As a result, the length of time for which these items are stored also varies with the nature of the materials.

Although any warehouse may inadvertently receive and store hazardous materials as part of a shipment of cargo, all warehouse managers are instructed to transfer labelled

hazardous material to one of two primary transfer warehouses used for hazardous materials, Buildings 23 and 73. Building 23 is used as the primary transfer warehouse for general hazardous materials while Building 73 is used as the transfer warehouse for special hazardous materials including ordnance and radioactive materials.

Support operations and activities for which hazardous materials are stored at MOTBY include vehicle and equipment maintenance, photographic and X-ray processing, steam generation, pest management, printing, painting, recreation, and general maintenance. Each material is generally stored at the location where it will be used.

Until it was relocated to Dover, New Jersey in 1991, the DRMO used Building 63 and Areas 203, 204, and 205 as its principal storage locations for all types of materials, including hazardous materials, which could potentially be reused at MOTBY or other military facilities. The DRMO was previously called the Defense Property Disposal Office (DPDO) prior to the late 1980s. DPDO, and later DRMO, has an operation at MOTBY from the 1970s through 1991. This report and the inventories in the appendices refer to both DPDO and DRMO depending on the time of the activity.

In addition to Building 63, other former hazardous materials storage areas were identified during the EBS. In general, these areas are no longer used because the operation at the location ceased (e.g., rust removal rooms), the materials were relocated to a more centralized storage location (e.g., pesticides), or the specific material was no longer used (e.g., trichloroethene). These former areas and current storage areas are described in Table C-1-1 of Appendix C and are located on Figure C-1.

Table C-1-1 and Figure C-1 include areas in which storage of materials deemed hazardous by any definition and intended for use occurred. These materials may include photocopying machine materials, solvents, cleaning solutions, process chemicals, pesticides, paints, and other similar materials. Petroleum products are not included in this table and are instead listed in the tables of Appendix D.

#### **4.1.2 Hazardous Waste Storage**

One characteristic, identified during the EBS, common to all current and former hazardous waste storage areas at MOTBY is that all have been located where wastes have been generated or collected to await disposal. Of these areas, the most significant hazardous waste storage areas were located in EBS Study Areas 203, 204, and 205.

These areas were used through the late 1980s by DRMO, the principal mechanism through which hazardous waste, generated at MOTBY as well as at military facilities worldwide, was disposed. In 1981 MOTBY submitted a Resource Conservation and

Recovery Act (RCRA) Part A Permit application for this storage facility. MOTBY did not submit a RCRA Part B Permit application because it did not qualify as a large quantity generator. The facility was assigned EPA RCRA Part A Permit Identification No. NJ02100-22752.

In 1990, MOTBY conducted a facility-wide survey of the location, types, and quantities of hazardous materials and wastes. At the time, a wide variety of hazardous wastes were located at numerous indoor and outdoor locations around the terminal. This survey provides an indicator of historic hazardous waste management practices at MOTBY. Building 14 was noted as containing the largest quantity of wastes of any storage area. Following the 1991 move of DRMO to Dover, New Jersey and closure of DRMO storage areas at MOTBY, Building 14 became the depository for hazardous wastes located around the terminal. All hazardous wastes were eventually characterized and removed from Building 14 for off-site disposal.

In 1991, when it was noted that Building 14 did not meet the requirements for a 90-day RCRA hazardous waste storage facility, MOTBY made improvements to Building 111 so that it could serve as its 90-day hazardous waste storage facility. After completion of the renovations to Building 111 in 1992, Building 14 was decontaminated (see Section 4.1.5). Currently, there are a limited number of satellite accumulation areas around MOTBY that contribute to the wastes stored at Building 111. Wastes which accumulate in these other areas are reported to the EMO and subsequently transported to Building 111 to await off-site disposal. Disposal of wastes stored at Building 111 is provided either through the Defense Reutilization and Marketing Service or through a private waste disposal contractor procured by the EMO. Satellite accumulation areas generally include vehicle and equipment maintenance shops, photographic and X-ray laboratories, and dispensaries.

Appendix C Table C-2-1 provides an inventory of current and former hazardous waste storage areas at MOTBY. Several assumptions and guidelines were considered during the development of this table: when a reference referred to an unknown material, the material was considered hazardous waste; all materials which were unusable mixtures containing hazardous materials were considered hazardous waste (e.g., used dielectric fluid, or PCB-contaminated oil); if a period of storage was not specified by a reference, the length of storage was inferred from the land-use scenario; and all drums were considered full. In general, storage of hazardous wastes is not well-documented and the inventory should not be considered a comprehensive summary. Each item listed in Table C-2-1 is mapped in Figure C-2.

#### **4.1.3 Hazardous Releases**

Hazardous substance releases at MOTBY identified during the records search generally consist of leaking containers at drum storage areas, leaking PCB transformers at waste transformer storage areas, potential releases from the dry dock, and other miscellaneous items. In general, releases of hazardous substances are not well documented and inventoried releases should not be considered a comprehensive summary. Table C-3 includes a detailed inventory of documented hazardous releases at the terminal. In addition, the location of each item is mapped on Figure C-3.

#### **4.1.4 On-Site Hazardous and Petroleum Waste Disposal**

Several former hazardous and petroleum waste disposal areas were identified at MOTBY during the EBS. These areas, which are inventoried in Appendix C, include the following: the boiler plant, where the burning of PCB-contaminated oil may have occurred; the battery acid pit inside Building 45; former fire training areas in Study Areas 85 and 100N; the former Navy storage area in Study Area 222, where pouring and burning of wastes occurred; the former landfill; and the sanitary sewer where photographic and X-ray processing wastes were disposed of in the past. Table C-4 is an inventory of these areas which identifies an assigned item number and item name, the study area in which disposal occurred, a description of the disposal (e.g., specific location, type of material, period of use), and current status (i.e., relevant investigations or remedial actions). Each item is identified on Figure C-4.

#### **4.1.5 Remedial Action to Date**

In 1989 and 1994, Dames and Moore completed Phases I and II of the RI of MOTBY. Appendix H (Table H-1) provides a summary of the RI investigations and remedial actions associated with these sites. Because the RI has not yet been approved by the NJDEP, the data, but not the conclusions, of the RI have been used for categorization purposes in the EBS.

By 1992, all hazardous wastes were removed from Building 14, which functioned as the facility's central hazardous waste storage facility in the late 1980s and early 1990s (see Table C-2). In 1992-93, the building interior was decontaminated. Decontamination consisted of asbestos removal, sealing/grouting of all floor and wall cracks up to a height of 4 feet, and steam cleaning of these areas. In 1995, the building was renovated and painted; construction included the installation of a new asphalt floor and ceiling. Investigations and

remedial actions associated with Building 14 and other specific items of hazardous materials storage, hazardous waste storage, hazardous releases, and hazardous waste disposal areas are described in Appendix C.

## **4.2 Petroleum Storage, Fueling Systems and Pipelines**

During the facility records search, 140 distinct environmental items associated with the storage of petroleum-related products were identified for MOTBY. These items, listed in Appendix D, include USTs, ASTs, tank trucks, tank cars, drum storage areas, and general storage areas of gasoline, diesel fuel, #2 fuel oil, #6 fuel oil, waste oil, hydraulic fluid, new oil, kerosene, or propane. Sixty-eight of these 140 items are still located at MOTBY, and, with the exception of three items associated with propane, the locations of these items are shown in Figure D-1. Sixty-five of the 140 items are known to have been removed from MOTBY and, with the exception of two items associated with petroleum storage, the locations of these items are indicated in Figure D-2. The status of the remaining seven items could not be determined; these items are described in Table D-3 and shown in Figure D-3. None of the items related to propane storage were mapped.

Information on storage tanks was collected from a review of draft and submitted tank registrations, MOTBY-generated inventories of tanks, correspondence between MOTBY and NJDEP, and facility engineer maps. Rarely did these references provide coordinating information that could be used to confirm the identity of any particular tank. While efforts were made to eliminate duplication and identify omissions, some errors may still be reflected in the tables of Appendix D.

### **4.2.1 Underground Storage Tanks**

Currently, 23 USTs are registered with NJDEP under UST Registration Certificate No. 0119928; however, only reference to 16 USTs were found during the facility file review. The required individual tank registration certificates for these tanks were not located. Descriptions of these tanks, ranging in capacity from 550 to 120,000 gallons, are provided in Table D-1 of Appendix D. Twelve of 16 tanks are still in use and provide storage for emergency generators, heaters and boilers, or are part of oil/water separators. Three of the four tanks that are not in use are the large #6 fuel oil storage tanks associated with the boiler plant, Building 44C. These three tanks have been the source of many petroleum releases in the past and were taken out of service in 1991. Since that time, MOTBY has been awaiting approval to abandon these tanks in place due to structural compromises that might occur if

they were removed. As of this writing, no closure approval by NJDEP for these tanks was located.

The records review also uncovered 32 USTs formerly located at MOTBY that have either been replaced or removed without replacement. These tanks had a capacity range of 250 to 15,000 gallons and were located at many locations around the facility as described in Table D-2. The status of six USTs is unknown at present due to a lack of information and these tanks are described in Table D-3.

#### **4.2.2 Aboveground Storage Tanks**

Descriptions of the 37 ASTs currently located at MOTBY, ranging in capacity from 65 to 250,000 gallons, are provided in Table D-1 of Appendix D. Thirty-three of these tanks are in use and either supply fuel to emergency generators, heaters, and boilers, or provide storage for waste oil associated with maintenance operations.

Ten former ASTs were identified during the records review. These tanks ranged from 100 to 5,000 gallons in capacity and are described in Table D-2. One AST has an unknown status due to a lack of information and is described in Table D-3.

#### **4.2.3 Other Petroleum-Related Storage**

Twelve items which are not stationary tanks but associated with petroleum-related storage at MOTBY were identified during the file review. These items include tank trucks, drum storage areas, and other petroleum storage areas. Descriptions of these areas are provided in Table D-1 of Appendix D.

Formerly, there were 21 additional items which were associated with petroleum-related storage. These items have been removed and are described in Table D-2 and were mostly drum storage areas.

#### **4.2.4 Propane Storage**

Propane has also been used at MOTBY. Currently there are three tanks which provide fuel to propane heaters and laundry dryers. There also were two former tanks located at MOTBY. Of these, the most significant was a 30,000-gallon tank associated with the "vaporizer house", formerly Building 120. Descriptions of all propane tanks are provided in Table D-4 of Appendix D.



#### 4.2.5 Fueling Points and Pipelines

There have been as many as three fueling points at MOTBY in the past, but only one remains in use today. The gas station is operated as part of the PX by the Army and Air Force Exchange Service (AAFES) and is located at Area 91; it consists of three USTs and three pumps for regular-, mid-, and high-grade gasoline. These tanks receive fuel from a supply company independent of MOTBY. The former fueling points were located at areas 44E and 106. Area 44E served as the refueling point for privately owned vehicles (POV) received from shipment as well as government vehicles. The former pumps and tanks located at Area 106 were associated with a maintenance garage at that location. The fueling tanks formerly located at Areas 44E and 106 have been removed.

From former Areas 134 to 130, there also was a piping system used for fire and refueling training activities. The area consisted of a series of pipes that carried fuel from two 15,000 gallon USTs at Area 134 to two temporary storage tanks in Structure 130, the Carrier Mock-up Platform. From here, fueling lines would be attached to begin shore-to-ship, ship-to-ship, and ship-to-shore refueling training. From another similar UST at Area 134, firefoam would be pumped over to the structure and used for fire training.

In the past, as many as two pipelines have been used at MOTBY to receive fuel oil from barges for the boiler plant. Only one of these two lines is still in service. The 6-inch, schedule 80 steel pipe runs through a concrete tunnel 2 feet by 3 feet from Berth N-6 down the length of Jersey Avenue to a junction north of the underground tanks at 44C. The line then turns south and proceeds to the boiler plant area where it again turns west toward the ASTs at Area 44F (Ref. 39, 540). The 6-inch line was installed after the original 8-inch line ruptured in March 1991. Fuel transfer operations resumed in January 1994. The concrete tunnel serves as secondary containment (Ref. 39). The second pipeline proceeds south from Berth N-8, underneath 15th Street, to the northwest corner of Building 44D. From here, it turned east to meet the junction where the first pipeline turns south (Ref. 540). No details on the construction or demolition of this line were discovered during the facility file review.

During fuel oil transfer, transfer occurs by a 6-inch hose connection from the barge to the pier and then into the pipeline. The manifolds at Berths N-6 and N-8 have catchment basins. Oil is pumped at 1,000 gpm at a operating maximum pressure of 70 psi. Approximately 1.6 million gallons, or approximately six shipments, of fuel oil are used by the facility each winter season from November to April (Ref. 39).

#### **4.2.6 Petroleum Releases**

During the facility file review, 65 petroleum-related releases since 1975 were identified. These incidents have resulted in releases of from 3 to over 7,000 gallons of petroleum-related material to surface water, soil, storm sewers, or pavement. Almost one-third (18) of these 60 releases have been associated with either the pipeline or the boiler plant. Tables D-5-1 and D-5-2 of Appendix D provide summary descriptions of each incident. Figure D-5 of Appendix D provides the approximate location of each petroleum release if identified.

#### **4.2.7 Remedial Actions to Date**

In 1992, MOTBY began to implement two projects to upgrade its storage tanks. As part of these projects, 25 USTs located around the facility were to be removed or replaced and the boiler plant USTs were to be closed and replaced by new ASTs. MOTBY contracted D & K Construction Co., Inc. to manage the work associated with the smaller tanks, and Merco, Inc. to manage the work associated with the tanks for the boiler plant (Ref. 113).

Each removal included completion of a closure application for approval by NJDEP. Once closure approval was granted, each tank was removed and the location investigated for contamination. As of this writing, no records were located confirming completion of the closure process for any of the tanks.

### **4.3 Wastewater Treatment Systems**

This section presents a summary of domestic and industrial wastewater treatment systems at MOTBY. Section 4.3.1 describes MOTBY's domestic STP, identifying sources of wastewater plant design and capacity, and associated permitting. Septic systems identified at the terminal are presented in Section 4.3.2. Industrial wastewater treatment systems are identified in Section 4.3.3 (Oil/Water Separators) and Section 4.3.4 (Silver Recovery Units). Appendix E presents inventories associated with wastewater treatment systems. Also, Figure E-1 identifies locations of each inventoried item.

#### **4.3.1 Sewage Treatment Plant**

With the exception of buildings located at Goldsborough Village and the Main Gate complex and those served by dedicated septic systems, all of the buildings at MOTBY are served by the on-base sanitary sewer system. There is also the capability to offload sewage from merchant vessels into a separate equalization holding tank (Building 1G), but this system

has reportedly not been used frequently. Sewage from Goldsborough Village and the Main Gate complex flow into a collection system leading to the Bayonne municipal STP (Refs. 23, 142). A discussion of the MOTBY collection system is provided in Section 3.3.2.

In 1972, the MOTBY STP (Building 1C) was upgraded to an extended aeration, activated sludge system with a capacity of 180,000 gallons per day. As part of this upgrade, the outer walls of the previous Imhoff tanks were retained. These walls were repaired in 1988 due to their poor condition. Currently, a communitor and bar screen are used for grit removal. The biological treatment system consists of four aeration tanks, two final clarifiers, and a sludge holding tank. Effluent from the plant is chlorinated within a chlorine contact chamber prior to discharge into Upper New York Bay (Refs. 23, 105, 142, 193).

Discharge from the MOTBY STP is currently permitted under NJPDES Permit No. NJ0020257. This permit became effective on May 1, 1985 and expired on April 30, 1990. Also, the permit was subject to a modification in 1992, which affected numerous facilities in New Jersey. As part of the permit, effluent restrictions/requirements are imposed for flow, biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, and oil and grease. Influent and effluent monitoring requirements for flow, 5-day BOD, settleable solids, suspended solids, residual chlorine, fecal coliform, pH, temperature, oil and grease, and petroleum hydrocarbons are summarized in the NJPDES permit (Refs. 42, 274).

Sludge generated at the STP is managed through the operation of phragmites reed grass beds. A new draft NJPDES permit (No. 0108251) was issued for the operation in December 1995. Conditions to operate the system were previously contained under NJPDES Permit No. 0020257 (see above). The surface water discharge aspects of the STP are continued to be regulated under NJPDES Permit No. 0020257, while the phragmites process and monitoring requirements are defined in NJPDES Permit No. 0108251 (Refs. 87, 274, 297).

The sludge treatment system consists of four reed beds, each occupying 15 feet by 37 feet with capacities of 2,200 gallons. Recent estimates of average sludge loadings have been reported as 35,200 gallons per year with solids at 2,412.5 ppm. Dry sludge generation is reported as 708 pounds per year. The beds are loaded approximately every six weeks. The reed grass species (*Phragmites communis*) absorbs water and conveys oxygen to the sludge, creating a favorable environment for the further biological breakdown of the sludge. Leachate generated by these beds is collected in an underdrain system and diverted to the head of the STP (Refs. 40, 87, 274, 297).

Prior to the installation of phragmites in the early 1980s, the system functioned only as sludge drying beds, where dried sludge would be removed for off-site disposal. Currently,

reeds are to be harvested each winter. Sludge beds are to be evacuated when the depth of the sludge in the bed reaches 6 inches from the top of the freeboard. Sludge is to be analyzed annually and prior to removal. According to the STP operator, sludge has not been removed since installation of the phragmites (Refs. 297, 274, 87, 801).

Table E-1 of Appendix E is an inventory of items associated with the STP. In general, these items include the primary physical elements of the collection, distribution, and treatment system (e.g., pump houses, sludge beds). In addition, each item is mapped on Figure E-1.

#### **4.3.2 Septic Systems**

Three active and one inactive septic systems, located in Study Areas 230, 234, 235, and 236, were identified during the EBS. Active septic systems are located at the general's quarters (Building 234A), the drinking water reservoir building (Building 235A), and the guest house (Building 235B). The septic system at Building 234A was previously used also to treat sewage from the former bachelor officers' quarters (BOQ) trailers (Buildings 236A-D) which are no longer present. The inactive septic system at the former guard's house (Building 230) was located on the current MOTBY sanitary sewer map, however, when this building was removed, the septic system plumbing could not be located (Refs. 193, 515, 801). Table E-2 of Appendix E provides an inventory of septic systems. Also, each item is mapped on Figure E-1.

#### **4.3.3 Oil/Water Separators**

MOTBY reportedly conducted a "stormwater discharge and sewage pre-treatment investigation in 1993." As a result, five oil/water separators were identified which were used to treat wash rack discharges at Buildings 44A, 45, 72A, 91F, and 101 (Ref. 197). Although no record of the investigation has been recovered, these oil/water separators were identified during the EBS. Of these, only the oil/water separators at Buildings 45 and 72A are active. Two additional oil/water separators were identified during the survey, including one active at the boiler plant ASTs (44F) and one inactive at the former Building 106 (Refs. 41, 596, 597). A description of the use and disposition of each oil/water separator is included in Table E-2 of Appendix E.

The following information was recovered during the EBS file reviews and interviews regarding operation and maintenance of currently operating oil/water separators. The facility representative at Building 45 indicated that there has been a problem with excessive water mixing with waste oil and the underground waste oil tank has required emptying approxi-

mately every six months. At Building 72A, the cover of the oil/water separator was removed for observation. This unit appeared unmaintained and potentially clogged. An EMO representative could not recall ever having to remove waste oil from this unit. MOTBY's SPPP identifies the oil/water separator at the boiler plant ASTs (Building 44F, a.k.a. 44C) as a source of non-stormwater discharge to the storm sewer. According to the SPPP, "periodic testing of the water leaving the oil/water separator should be done to ensure that the device is working properly..." No record of monitoring of this or any other oil/water separator supernatant discharges at MOTBY has been recovered. With the exception of the oil/water separator at the boiler plant ASTs, it could not be determined to which sewer (storm or sanitary) oil/water separators are plumbed (Refs. 41, 801).

During the records search a file was encountered which includes "separator sludge" analytical results dated July 18, 1995 (Ref. 172). The file does not indicate in which separator the sludge was stored. The sludge was analyzed for disposal parameters, including volatile organics (total and toxicity characteristic leaching procedure (TCLP)), TCLP semivolatile organics, PCBs, TCLP herbicides, TCLP metals, pH, RCRA characteristics, and total petroleum hydrocarbon (TPH). Detected analytes included TPH (66,600 milligrams per kilogram (mg/kg)), PCB Aroclor 1260 (162 micrograms per kilogram ( $\mu\text{g/kg}$ )), toluene (250  $\mu\text{g/kg}$ ), m/p-xylene (480  $\mu\text{g/kg}$ ), and o-xylene (1,300  $\mu\text{g/kg}$ ) (Ref. 172).

Table E-2 of Appendix E is an inventory of wastewater treatment systems other than the STP, of which oil/water separators are included. Each of these items is mapped on Figure E-1.

#### **4.3.4 Silver Recovery Units**

Three active silver recovery units at X-ray and photographic laboratories were identified during the EBS interviews. These are located at the Building 42 4th floor photographic laboratories and 4th floor Navy Dispensary X-ray laboratories, and the Building 22 microfilm laboratories. In addition, three inactive photographic laboratories were identified which previously utilized silver recovery units (Building 42 2nd floor Army photographic laboratories #1 and #2, and 6th floor Army photographic laboratories). Details regarding the silver recovery units are provided in Table E-2 of Appendix E. Also, active and inactive units are mapped on Figure E-1. Note that there are also photographic or X-ray processing facilities which have never used silver recovery units. All current and former photographic laboratories and X-ray laboratories are inventoried in regards to hazardous material or hazardous waste storage in Appendix C (Tables C-1-1 and C-2-1). In addition, a discussion

of current and former photographic/X-ray processing waste disposal and handling protocol at MOTBY is provided in Section 4.4.5.

#### **4.4 Other Environmental Concerns**

A number of environmental concerns were identified at MOTBY that did not fit in the categories described above. These have been described in the following section. Because many of them are linked to specific activities rather than to a distinct facility, they are referenced directly by the item number used to identify them in the inventory tables provided as Appendices F and G.

##### **4.4.1 Pesticide Use**

Pest management activities at MOTBY, past and present, have included pest surveillance, insect pest control in buildings (i.e., for termites, stored product pests, quarantine pests, flies, cockroaches, etc.), insect pest control base-wide (i.e., for mosquitoes, ticks), rodent control inside and outside buildings, and vegetation control around buildings, railways, and dock areas. MOTBY has several unique features that have mandated particular attention to pest control over the history of the base. First, the base's mission has been to transfer material to and from ships calling on the terminal and this material has included large amounts of foodstuffs, clothing, and other material subject to infestation and degradation by pests. In addition, the facility has received material from other bases in the United States and overseas, that have at times contained pests. Thus, use of insecticides, rodenticides, and fungicides, is crucial to the functioning of the warehousing and transferring operations of the base. Second, the base is situated adjacent to tidal flats in Upper New York Harbor that are periodically dredged, which creates excellent conditions for the breeding and proliferation of mosquitoes and other insects. Third, the extensive use of roadways, docks, and railways on the base requires extensive weed control for safety and fire prevention.

Current (and past) key activities have including mosquito fogging and larvaciding, fumigation of storage areas, and weed control. Mosquito fogging is performed in the summer months using a gasoline-powered fogger on driveable roadways. As of 1991, the suggested pesticides were Sevin and Malathion. Mosquito larvaciding is performed in late spring and early summer at Lots 202, 213, 222, and 223 by treating drainages with a liquid concentrate larvicide. Larvaciding is also performed in the railroad classification yard, the DRMO yard, and the BOQ trailer area. Fumigation of continuous storage areas for clothes moths is performed using paradichlorobenzene - often in the form of mothballs. Fumigation for stored

product insects is performed with methyl bromide or chloropicrin. Weed control is performed in the following areas: along 23.1 miles of railroad track (3 feet on each side); along fence areas (3 feet on each side); at sign posts; around transformer cages; in playgrounds; along sidewalks; and around fire alarm boxes and hydrants (Ref. 91).

The MOTBY pest management program is conducted in accordance with DoD Guidelines and United States Army Instruction 420-76. Activities with pest management responsibilities at MOTBY include the Installation Medical Authority, Directorate of Engineering and Housing (DEH), Post Exchange, Fire Department, and Food Service Facilities. The Preventive Medicine Service (PVNTMED Svc) from the Fort Monmouth Medical Department Activity (MEDDAC) provides mosquito surveillance support to MOTBY. Veterinary Services, from Fort Monmouth MEDDAC, performs inspections of food shipments delivered to nonappropriated fund activities and monthly retail food sanitary inspections at the Post Exchange. The Pest Management Coordinator in the DEH has the supervisory role in the implementation of the Base Pest Management Plan and can act as an alternate pest controller. The pest controller is a contractor under the supervision of the DEH (Ref. 88, 89).

A variety of chemicals are used at MOTBY to control pest infestation and ground foliage. Small operational quantities of pesticides including insecticides, herbicides, rodenticides, and fungicides are stored in the Entomology Shop in Building 101 by the pesticide contractor. Pesticides stored at the time of E & E's January EBS site visit were in containers up to 3 gallons in size (Ref. 801). Pesticides are brought on site by the contractor on an as-needed basis; therefore the quantity at any one time is relatively small. Pesticides are mixed and formulated in the Entomology Shop on the first floor of Building 101. The current pesticide contractor, AKF Pest Control of Patterson, New Jersey, is registered with the EPA (Registration No. NJEPA90157) (Ref. 801).

Pesticides currently used at the base for pest control include Microban, Safrotrin, Gentrol, Conquer, Dursban Lo Concentrate, Dursban 2E, Dursban 50W, Roundup, Rattler, Scourge, Altosid Briquets, Contrac Blox, Baygon, PT 400 Ultraban, PT515 Wasp Freeze, PT565, Invader Residual, and Talon C Bait among others (Ref. 801).

Pesticides such as chlordane and DDT, that are presently banned, were probably used on the base into the 1970s. Since at least 1977, according to periodic reviews by USAEHA, all pesticides used at MOTBY were pesticides that were registered with the EPA at the time. Some amounts of banned pesticides, including DDT and thallium sulfate, were stored on the base prior to removal in the late 1970s or early 1980s (Ref. 104, 105, 153, 193)

Pesticide storage and mixing has occurred in a variety of buildings around MOTBY. Buildings 11 and 12 (HMS-11-1 and HMS-12-1) were used in the mid-1970s for pesticide storage. From the late 1970s to 1981, operational quantities of pesticides were stored in the Building 101 Entomology Shop (HMS-101-1 and HMS-104-1) and bulk pesticides and excess pesticides were stored in Building 103 (HMS-103-1). Storage in Building 103 was identified in several USAEHA surveys conducted from 1976 to 1980 as inadequate. The Building 103 storage area was cleaned up in late 1980 or early 1981, and bulk storage was moved to Building 31. Storage in Building 31 was on wooden pallets over a wooden floor. Bulk Storage was moved from Building 31 to Building 101 in 1983. In 1990 or 1991, MOTBY pesticide control operations began to be contracted out, eliminating the need for bulk storage of pesticides. After 1991, only small quantities of pesticides have been stored in the Building 101 Entomology Shop. A 1993 USAEHA survey stated that the floor in the Building 101 pesticide storage area would need to be resealed to avoid seepage and contamination of the subsurface. The floor was resealed sometime in the last two years, and the present floor shows no evidence of cracking (Ref. 801).

Excess pesticides, including DDT, were also stored prior to disposal at Lot No. 23 in the former DPDO Storage area. Storage at the DPDO area was often in drums inside a Conex box (Ref. 105).

No references to disposal of excess or waste pesticides was found in the material reviewed for the EBS. Empty pesticide containers were disposed in the on-base sanitary landfill prior to 1970 (Ref. 193). Empty pesticide containers today are triple-rinsed and returned to the pesticide manufacturer or supplier (Ref. 193).

Details concerning storage of pesticides can be found in Tables C-1-1 and C-2-1 of Appendix C.

#### 4.4.2 Ordnance

Operations at MOTBY and previously at the NSD Bayonne that have involved ordnance material include: ammunition shipments and submarine net storage during World War II; operation of the NSD Bayonne as the primary distribution point for ordnance for the East Coast in the post-war period; and periodic shipments of ordnance material throughout the base's history including the buildup to the 1991 Gulf War. In addition, Building 72A has been used as a small-arms indoor firing range from 1948 to the present. Reportedly, there have been no munitions demolition or demilitarization operations at MOTBY and no use, storage, or transfer of chemical or biological weapons (Ref. 193). None of the long-time base personnel interviewed for the EBS nor current base personnel identified any large-scale



transfer of live ordnance through the base, although there have been periodic shipments of small arms ammunition and non-live ordnance components (Ref. 804).

During the two years of operations as the Bayonne Port Terminal (1939 - 1941), the port was used to store and load explosives bound for the United Kingdom at the beginning of World War II (Ref. 221). Ammunition shipments through the terminal apparently continued until August, 1941, when they were ceased to avoid disruption to base construction activities (Ref. 221). Temporary storage of munitions prior to this date occurred in the transit storage shed (ORD-31-1), later called Building 31 by the Navy, which was the only storage area used by the Port at this time.

Once the base was commissioned by the Navy in 1942, it is likely that some transfer of ordnance material continued, but this did not apparently include live ordnance components. The bulk of ordnance transfer in the New York Port area occurred at the nearby Naval Ammunition Depot (NAD) Earl, which, in a post-war study, was identified as having the only pier loading facilities in the New York Area suitable for explosives (Ref. 215).

In the post-war years, NSD Bayonne's mission included acting as the primary distribution point for the East Coast for ordnance and electronic materials (Ref. 232). However, in a review of ammunition and explosives handling practices in the New York Port Area in 1948, the NSD Bayonne was not identified as an ammunition or explosives storage handling or loading point nor as a backup depot (Ref. 215). While historical records do indicate that ordnance storage and transfers did occur at NSD Bayonne during this period, it would also seem that this activity was somewhat limited by the functioning of NAD Earl.

As part of its ordnance distribution function, approximately 4,500 line items were transferred from the United States Naval Torpedo Station, Newport, Rhode Island to NSD Bayonne in late 1950 or 1951 (Ref. 244). This transfer was part of the designation of NSD Bayonne in 1950 as the distribution port for Advanced Underseas Weapons Material (presumably torpedoes or associated material). A 1951 memo noted that NSD Bayonne was the East Coast distribution point for ordnance material (cognizance materials symbols J and Z) for naval activities and vessels in the 1st, 3rd, and 4th Naval Districts and the Coast Guard Supply Depot, in Jersey City (Ref. 244). NSD Bayonne also transferred ordnance and electronics to European countries under the Mutual Defense Assistance Program (MDAP). Physical handling of ordnance at NSD Bayonne was performed by the Ordnance Section of the Material Division, which prepared incoming ordnance material for stock, outgoing material for the Traffic Branch, and ascertained that material in stock was properly stored, packed, and preserved (Ref. 244). Ordnance activity may have increased somewhat starting in mid-1954 when NSD Bayonne assumed set build-up programs taken over from NAD Crane

(Ref. 232). The specific location and exact materials handled during this period were not identified in the EBS file review or by interviews.

Ordnance transfer was also conducted during the Army tenure at MOTBY, although the frequency of munitions shipment may have dropped from the Navy period, given that there was no indication of a specific ordnance designation for the Military Ocean Terminal. Currently, according to a 1993 memo by the MOTBY Fire Chief, MOTBY seldom receives or ships munitions, as munitions are normally handled by Naval Weapon Station (NWS) Earl or the Military Ocean Terminal at Sunny Point (MOTSU), North Carolina (Ref. 251). When munitions are shipped through MOTBY, they are transported in double-steel wall containers and escorted by DoD police (Ref. 251). Larger amounts of munitions were transferred through MOTBY during the 1990 buildup to the Gulf War (Ref. 251).

None of the references reviewed for this report and none of the interviewees identified the disposal of any munitions or explosives at MOTBY. Given the proximity of Picatinny Arsenal, Fort Monmouth, and Fort Dix, all with explosive ordnance expertise and missions, it is likely that MOTBY would rely on the personnel and facilities at one of these bases for disposal of explosive material, should it be required. During an E & E site visit in January 1996, one instance of limited demilitarization was identified during a site walkover of the former DRMO storage yard in Lot 204. A small pile of partially buried fiberglass and aluminum tubes (ORD-204-1) that were formerly parts of antitank rockets was observed. According to a former DRMO employee who currently works in the EMO office, DRMO received some previously fired light antitank weapon (LAW) launchers from West Point, crushed the tubes, and discarded the remains. Upon receipt at MOTBY, none of the launchers/tubes contained propellant. The LAW sights (which contain radioactive components) had also been removed prior to arrival at the DRMO at MOTBY (Ref. 801). During the file review, one instance of disposal of empty artillery shells was identified. During a 1987 site inspection by NJDEP, approximately 50 to 100 empty shells were observed on the northern shoreline (ORD-100N-1) in the area of an eroded bulkhead north of Building 100 or 101 (Ref. 271, 718).

The Naval Salvage Training School operated at MOTBY during the Navy period, and used many of the buildings in and around the dry dock area. One reference was found to the use of Building 138 near the Building 130 Carrier Mockup as the "... amite control house" (ORD-138-1), which may refer to some limited storage of dynamite, perhaps used in salvage training (Ref. 243). This use could not be confirmed.

Currently, the only designated area for ordnance storage is in the secured portion of Building 73 (ORD-73-1). At the time of the EBS site visit in January 1996, Building 73

contained some boxes of small arms ammunition, and empty bomb casings. This warehouse is used for the temporary storage of limited amounts of munitions prior to shipment or transfer.

The only other ordnance facility identified at MOTBY is the present Pistol Range in Building 72A (ORD-72A-1). This range was used from 1948 to 1963 as a rifle range and as a pistol range since then. In recent years, there have been some identified indoor air pollution concerns about exposure for pistol shooters to lead due to inadequate cleanup procedures and ventilation concerns (Ref. 18). No other pistol or rifle range was identified.

Ordnance items are inventoried in Table F-1 of Appendix F and are mapped on Figure F-1.

#### **4.4.3 Biological/Medical Waste**

MOTBY generates small quantities of medical waste through the operation of the Military Sealift Command (MSC) Dispensary in Building 42 (MED-42-4-1) and the United States Army Health Clinic (USAHC) in Building 52B (MED-52B-1). The infectious waste generated is composed primarily of bandages, dressings, and tongue depressors, in addition to needles and syringes. In the MSC dispensary, waste is collected in specially marked containers for storage in room 4-184 until it is taken off site for disposal (Ref. 801). In the USAHC, medical waste is collected in specially marked containers for storage in the northwest corner room of Building 52B until it is also taken off site for disposal (Ref. 801). At the USAHC, needles and syringes are reportedly broken and stored according to Army regulations and eventually taken to Fort Monmouth for incineration (Ref. 193). These practices have been in place since at least 1971 and possibly earlier (Ref. 257). The dispensary at Building 52B has been in operation since 1942. The length of operation of the MSC dispensary was not determined.

Building 102 previously operated as a Cafeteria, Dispensary, and Service building from 1943 until 1957 (Ref. 502). Whether medical waste was generated at this former dispensary (MED-102-1) was not indicated during the EBS file review. Similarly, waste handling practices were not identified.

Given that prior to 1970, the on-site landfill reportedly received "every type of waste" (Ref. 193), it is possible that infectious waste, including needles and syringes could have been placed in the landfill from the dispensaries at Building 52B and 102, although none of the references reviewed for the EBS and none of the interviewees identified that this type of disposal actually occurred. As early as 1971, reference is made to off-site disposal of pathological and infectious waste in an incinerator operated by Jersey City (Ref. 257). As

mentioned above, later reference is made to incineration of needles and syringes from the dispensary in Building 52B at Fort Monmouth.

Medical Waste items are inventoried in Table F-1 of Appendix F and are mapped on Figure F-1.

#### **4.4.4 Radioactive Materials**

MOTBY has no Nuclear Regulatory Commission (NRC) licenses or Department of the Army Authorization/Permit to receive, store, or transfer radioactive materials. Instead, radioactive materials and commodities are received, stored and shipped under the NRC licenses and Department of Army Authorizations assigned to radioactive commodity managers within the Army. These licenses and authorizations are worldwide in scope (Ref. 257).

The only ionizing radiation sources permanently located at MOTBY at present are the medical X-ray machine in the MSC dispensary in Building 42 (RAD-42-4-1) and the medical X-ray facility at the USAHC in Building 52B (RAD-52B-1). The X-ray unit in Building 52B is reportedly a Westinghouse 150 kilovolt peak (kvp), 300 milliamperes (mA) Radiographic Fluoroscope (Ref. 193). Medical operating personnel who use the apparatus wear film badges which are monitored by Fort Monmouth personnel (Ref. 193). The details on the MSC X-ray machine were not identified.

Several other locations at MOTBY were also identified in 1991 as storing radioactive commodities. According to the 1991 Hazardous Waste Management Plan, material containing beta/gamma radiation were stored on the second floor of Building 45, with amounts varying each month (Ref. 116). The same 1991 plan identified that some "radiation" was stored in Building 44B, the base Fire Station. The material or storage in Building 44B and 45 could not be confirmed by the current base EMO (Ref. 116). No radioactive material was observed in Building 44B during the E & E January 1996 site visit (Ref. 801).

Temporary storage of radioactive commodities occurs in Building 23 and the western part of Building 73. USAEHA (now USACHPPM) has conducted periodic radiation protection surveys of both the USAHC X-ray unit and the two temporary storage areas since at least 1976 (Ref. 257). Various radioactive material are shipped through MOTBY, including Type A quantities within transport groups I, II, and III, and they are generally received and stored 1 to 120 days before shipment. A dedicated room on the north side of Building 23 (RAD-23-1) has been used to store radioactive packages prior to shipment. Security items containing radioactivity are stored in a dedicated, segregated area in the secured portion of Building 73. Both areas are presently surveyed by the Safety Office of the 1301st Port Command (Ref. 801).

With two exceptions, USAEHA surveys of these two areas have generally found no health hazards resulting from transportation of ionizing radiation sources through MOTBY. A 1984 survey found a potential hazard arising from the following: a lack of dosimetry programs, proper posting of storage areas, inadequate training, and the use of one of the areas as a dwelling by stray cats (Ref. 257). A 1987 survey found a lack of an overall radiation protection/safety program and storage of multiple sources together without proper monitoring. A 1990 survey found improvements since the 1987 survey, with some areas still requiring improvement. Wipe sampling was conducted in Buildings 23 and 73 for tritium, and gross alpha and beta/gamma removable contamination. All results were within acceptable levels (Ref. 257). Some items were identified in the 1990 survey as having been stored up to 300 days (Ref. 257). During the January 1996 site visit, both of the temporary storage areas for radioactive materials were surveyed. All radioactive items were clearly labelled and the building areas were posted with appropriate warning signs (Ref. 801).

Currently, the MOTBY Radiation Control Committee, which is part of the Occupational Safety and Health Committee, reviews and proposes controls for radiation sources and handling at MOTBY. The committee reviews proposals for the use of radiation sources and provides recommendation to the base command to establish control of potential health hazards resulting from procurement, possession, storage, transportation, and use of radioactive materials and equipment (Ref. 29). Reportedly, USACHPPM will conduct a radioactive clearance of the radioactive storage areas prior to transfer.

Radioactive concerns are inventoried in Table F-1 of Appendix F and are mapped on Figure F-1.

#### **4.4.5 Industrial Discharges to Storm and Sanitary Sewers**

Historically, various industrial wastes have been discharged to both the storm and sanitary sewers at MOTBY. These discharges are associated with operations such as the photographic shops, the cold storage facility, vehicle wash racks and maintenance shops, and the boiler plant. A discussion of current and historic discharges to each sewer follows.

MOTBY is currently permitted to discharge stormwater according to NJPDES General Permit No. NJ0088315 (see Section 4.5.7). In the SPPP associated with the permit, MOTBY reports two non-stormwater discharges to the storm sewer, including steam condensate from the boiler plant and effluent from the STP (Ref. 41). Prior to 1992, MOTBY was permitted to discharge non-contact cooling water from Building 35 via NJPDES Permit No. 0020257 (Refs. 197, 274) (see also Section 4.5.7). In 1977, it was reported that roof drains and floor drains at MOTBY are plumbed to the storm sewer. In addition, it was

reported that there were no grease and sediment traps at the auto craft shop (Building 72A), steam cleaning area at Building 45, or at drains in the maintenance areas of Buildings 45, 53, 44A, 44B, 44D, 44E, and 15A (Ref. 105). This indicates the probable historical release of petroleum, solvents, and antifreeze to the storm system at maintenance areas, as well as the potential historical and/or ongoing, unreported discharge/disposal of unknown wastewaters via floor drains terminal wide. In addition, neutralized waste battery acid was reportedly disposed via a floor drain at Building 45 from approximately 1977 until an unknown date. There have been conflicting reports as to which sewer this floor drain discharges. Prior to 1977 this waste was neutralized within a small pit near the drain which drained to underlying soils (Refs. 105, 193, 259, 260, 501, 513, 515). Finally, boiler blowdown is reported to have been discharged to the storm sewer prior to 1977 (Ref. 193).

Sometime during the 1980s, oil/water separators were installed at wash racks located at Buildings 44A, 45, 72A, 91F, 101, and 44F (see Section 4.3.3). With the exception of the oil/water separators at Building 44F, it could not be determined to which sewer (storm or sanitary) these separators are currently plumbed. The oil/water separator at Building 44F (the heating oil ASTs associated with the boiler plant) discharges to the storm sewer per MOTBY's NJPDES General Stormwater Permit No. 0088315 and SPPP (Refs. 41, 123, 197).

Current industrial discharges to the sanitary system are reported as boiler blowdown from Building 44C (since 1977) and pretreated photographic shop discharges (Refs. 142, 193). Prior to 1980, photographic and X-ray shops discharged processing wastes to the sanitary sewer (Ref. 204). Facilities which have or are presumed to have discharged photographic wastes to the sanitary sewer include: Building 42 former 2nd floor Army photographic laboratories #1 and #2; Building 42 4th floor Navy photographic laboratories and X-ray laboratory; Building 42 former 6th floor Army photographic laboratories; Building 52B Army Health Clinic X-ray Laboratory; Building 22 Federal Archives Center Microfilm Laboratory; and the Building 228A Arts and Craft Shop Photographic Laboratory. These facilities are listed in Appendix C (Tables C-1-1, C-2-1, and C-4). During the 1980s, MOTBY strove to eliminate such discharges. As a result, current waste disposal procedures for photographic/X-ray shops consist of either pretreatment of wastes prior to sanitary discharge or containerization of wastes prior to off-site disposal via EMO (Refs. 204, 801).

#### **4.4.6 Dry Dock Operations**

The dry dock has been utilized by various entities since its construction in the 1940s. It was initially used by the Navy during World War II for the construction of warships. The Army took over control of the entire terminal in 1967. The dry dock was not used under

Army supervision until 1976, when the Bethlehem Steel Corporation entered into a lease agreement for the facility. Hoboken Shipyards took over operation of the dry dock in 1982. One year later, Hoboken Shipyards was purchased by Braswell Shipyards, Inc. (BSI). Lease of the dry dock to BSI/Hoboken terminated in February 1988 (Refs. 105, 241).

The basic functions of the dry dock were the repair, cleaning, and painting of ships' bottoms, propellers, rudders, and other external parts below the water line. It is presumed that such functions have varied over different time periods. The following description of operations at the facility is based on information provided in 1977 during Bethlehem Steel's tenure (Ref. 105).

Processes involved in dry-docking included docking, undocking, tank cleaning, abrasive and chemical paint removal, painting, and mechanical repair. Immediately prior to docking, the dock would be filled with bay water through flooding tunnels, and the gate (a floatable caisson) removed. Water was removed via two systems. Once a ship and caisson were in place, four dewatering pumps would remove water from within the dry dock. While the dock was dry, shallow drainage channels collected seepage water, stormwater, and process wastewaters (see below), directing flow to a drainage sump from which two drainage pumps would lift water to the harbor.

During tank cleaning operations, detergents and/or hot water would be sprayed over surfaces using steam supply hoses. Spent wash water was reportedly pumped into tank trucks for subsequent disposal. Abrasive materials were used to blast paint, corrosion, or marine growths from a ship's hull, fuel tanks, bilges, and water supply tanks. Spent materials were removed with vacuums, shovels, and front-end loaders, or were washed to the drainage system. Paints were applied using airless spray guns and manual methods. Paints normally contained toxic heavy metals for prevention of corrosion and marine growth on the hulls of ships.

The accumulation of spent materials on the dry dock floor was reported as the single largest contributor to wastewater pollutant discharges. For example, heavy metals would be leached out of the chipped/removed antifoulant and primer paint in spent abrasives, and into waters of the dry dock floor which, as described above, were discharged to Upper New York Bay via the dry dock drainage system. It has also been noted that dry docked ships had not utilized available sanitary discharge facilities, presumably discharging sewage directly within the dry dock or into the bay.

When the dry dock was taken over by Hoboken Shipyards in 1982, presumably operations remained similar to that described above. It was noted that when BSI purchased

Hoboken Shipyards in 1983, operations were increased; however no additional details were provided (Ref. 173).

### **Discharge Permitting**

Bethlehem Steel applied for a NPDES permit for dry dock discharges in 1976. A permit was issued sometime between 1977 and 1980 (Refs. 105, 193, 241). This permit, which is expected to contain discharge monitoring requirements, was not located during the file search at the NJDEP. The permit expired at an unknown date.

According to a representative of the NJDEP Bureau of Standard Permitting, Hoboken Shipyards was authorized to discharge from the dry dock according to NJPDES Permit No. NJ0030520. This permit was issued on September 1, 1984 and expired on September 1, 1989. This permit is located within an archived microfiche file at NJDEP in Trenton, New Jersey.

### **Sampling Events**

In 1976, an aqueous sample was collected from the drainage sump on a day following departure of a container ship. Sample results were compared to a bay water sample obtained 10 feet off the east bulkhead. Comparison of results showed a "slight increase" in ammonia-nitrogen, total Kjeldahl nitrogen (TKN), copper, and lead (Ref. 105). Note that these sample results may represent diluted constituents since the sample was obtained after the dry dock was completely filled with bay water. It is presumed the dry dock was then dewatered prior to sample collection.

In 1992, 10 samples of bottom sediment were collected from evenly spaced locations along the center line of the dry dock from the rear wall to the caisson. Sediment samples were analyzed for total organic carbon (TOC) and TCLP metals. The only TCLP metals detected above the reporting limit were barium (concentrations ranging from 0.290 mg/L to 0.725 mg/L) and lead (concentrations ranging from 0.083 to 0.543 mg/L). These concentrations are far below the TCLP maximum concentrations for toxicity characteristic hazardous waste for barium (100 mg/L) and lead (5.0 mg/L) (Refs. 115, 241).

#### **4.4.7 Additional Miscellaneous Environmental Concerns**

Several additional environment concerns were identified during the EBS file review and site visit. These items do not easily fall into one of the hazardous substance, petroleum, or other environmental concerns categories and are thus discussed in this section.



#### 4.4.7.1 Miscellaneous Concerns at MOTBY

A 1990 base-wide investigation of hazardous material and waste handling identified that it was common practice at the base to dispose of contaminated Speedy-Dry into trashcans and dumpsters used for general refuse (MISC-MOT-1). Speedy-Dry has been and continues to be used in most of the warehouses on the base for cleanup of engine fluid and solvent spills. The 1990 investigation noted that in nearly all cases, contaminated Speedy-Dry was thrown out with the trash. The ultimate disposal of this material in recent years would be to the off-site landfills that receive solid waste from MOTBY (Ref. 178). Without actual testing of the material, it is unknown whether any of the Speedy-Dry would actually have been classified as a hazardous waste.

During the January 1996 site visit, several small piles of black fine-grained material similar to sandblasting residue were observed in three locations at the base: near the former Building 138 south of the dry dock (MISC-138-1), in the northwest corner of Lot 15 near the north berth (MISC-4-1), and in the landfill. Facility EMO personnel noted that this material looked similar, if not identical to "Black Beauty", the commercial name for sandblasting material. Deposition of sandblasting material has been previously identified at the landfill (HWD-LF-1) in the 1970s and in 1993 outside of Building 100 (HWS-100-1). While testing of the material found in 1993 outside Building 100 ultimately identified the material as non-hazardous, sandblasting residue could potentially contain significant concentrations of metals and other hazardous substances. Given extensive snow coverage at the base at the time of the site visit, it is possible that there are other piles of this material, particularly in and around the dry dock area.

Also during the January 1996 site visit, an area in the southwest portion of the north bay of Building 100 was observed to be covered with a white residue (MISC-100-1) similar in appearance to firefighting foam. The residue covered an area approximately 20 feet by 30 feet and was contained within a concrete footing for a small former structure. This material and its origin was not identified by EMO personnel, but it may be related to a 1992 compressor fire in Building 100.

In 1993, a sample of "pumpwell sludge" was collected for the purposes of characterization. This material consists of sediment collected within a sump in the southeastern corner of the pumpwell and, based on its location, is not expected to have come in contact with dry dock process waters. Sample analyses included TCLP volatile organics, TCLP semivolatile organics, PCBs, TCLP nickel, TCLP metals, RCRA characteristics, and TPH. Only TPH was detected (1,340 mg/kg). The material was allegedly removed using a vacuum truck and

placed in two roll-off containers. The material was allegedly solidified using kiln dust and disposed off site (Ref. 801).

#### **4.4.7.2 New Jersey Department of Transportation (NJDOT) Highway 169 Right-of-Way (ROW) Investigations (1991 - 1994)**

In 1991 and 1992, NJDOT conducted ROW assessments which identified various surface and subsurface sources of contamination in and outside of the 169 ROW west of MOTBY. A remedial investigation conducted in 1993 and 1994 further delineated the level and extent of contamination relative to roadway construction and rights-of-way. The results of this study are summarized in Section 5 as they relate to adjacent properties. Several concerns relative to MOTBY parcels on the western boundary were raised by these studies.

Off-site contaminant sources identified relevant to the eastern edge of the 169 ROW included metal manufacturing operations at the Hicor Associates property, the former Lehigh Valley Rail Road ROW, three petroleum product lines in the Conrail ROW, the use of historic fill, and potential groundwater contamination from sources outside the 169 ROW including underground storage tanks at Hicor Associates, along Avenue E, and at MOTBY.

Only two shallow subsurface soil samples (4 feet below ground surface) were collected on MOTBY property during the NJDOT studies. These two samples were collected in the parking lot northwest of the main gate. These samples contained low levels of petroleum hydrocarbons (up to 62.8 mg/kg) (Ref. 315).

The results of the NJDOT studies indicate that there is surface and subsurface petroleum, PAH, and metal contamination of soil above non-residential soil cleanup standards in the 169 ROW north and south of the Prospect Avenue entrance. Groundwater also contains floating product, diesel, and benzene and several metals above GWQS class II-A standards north of the Prospect Avenue entrance. Groundwater north and south of the 40th Street bridge is also contaminated in the 169 ROW with lead and trichlorofluoromethane and subsurface soil contains low to medium levels of petroleum hydrocarbons. Limited PAH contamination was also identified in soil under the 40th Street Bridge.

As of early 1996, the widening project was underway. The Remedial Action Plan for the project indicated that soil and metal wastes that failed hazardous waste criteria would be removed and disposed off-site, and soil that failed non-residential criteria would be covered by roadway surfaces or with 2 feet of soil that passed the criteria. Groundwater withdrawn from project area was to be discharged back into the local aquifer by means of discharge basins or trenches cut into the project right-of-way (Ref. 317). While these measures will

reduce exposure to users of the 169 ROW, migration concerns still exist relevant to some of the identified contamination.

The implication for the western MOTBY parcels is that there is a potential for subsurface migration of contamination found in the 169 east ROW into MOTBY. The study areas most susceptible to impact are the LRP and GBV Study areas which are at a similar or lower grade than the 169 ROW. Conversely, the leaking USTs in Study Areas LRP and GBV could also have impacted the 169 ROW. The other western perimeter study areas (230, 234, 235, and 237) are well above the 169 ROW grade, and the only potential concern is migration eastward from the ROW onto MOTBY via groundwater. A further concern raised by the NJDOT study is that some of the metal bearing wastes and fill (possibly originating at the Hicor Associates property) found near the Prospect Avenue entrance may also be present in the nearby LRP Study area.

These migration concerns have been taken into account during the categorization of MOTBY Study Areas as follows: migration of petroleum and metals and potential use of contaminated fill are category 7 concerns for the LRP Study Area; migration of petroleum, lead and trichlorofluoromethane in groundwater is a concern for the northwest corner of the GBV study area and all of the 230, 234, and 235 areas. Although the oil product pipelines are also adjacent to Study Area 237, surface and subsurface sampling at this study area by NJ Transit (see below) did not identify the presence of any contamination, and no concerns were thus identified.

#### **4.4.7.3 New Jersey Transit, Hudson-Bergen Light Rail Transit System Remedial Investigation, 1995**

In support of a New Jersey Transit proposal to construct an extension to the Hudson-Bergen Light Rail Transit System, BEM Systems Inc. conducted a Remedial Investigation/Remedial Alternatives (RI/RA) Analysis of the proposed light rail corridor in addition to the sites for permanent facilities in 1995. Two facilities are proposed to be located on MOTBY property: a Park and Ride lot at 45th Street (which consists of EBS Study Area 237), and a Park and Ride Lot at 34th Street (which will consist of the EBS LRP Study Area). The RI investigation program included the collection of soil samples from both proposed locations on MOTBY and the installation and sampling of groundwater monitoring wells in the proposed 34th Street Park and Ride Area.

In assessing potential sources of contamination at the two sites, the RI did not identified specific activities or areas of concern, but did suggest that some of the areas of

environmental concern identified during the 1994 Dames and Moore Remedial Investigation or other land-use activities at MOTBY may have affected the sites.

A total of 29 soil samples from 12 soil borings were collected on MOTBY property and submitted for laboratory analysis with 3 borings and 6 samples at the 45th Street Park and Ride site and 9 borings and 21 samples on MOTBY property at the 34th Street Park and Ride site. Soil samples were analyzed for Target Compound List (TCL), Target Analyte List (TAL), and herbicides. Soil samples from seven borings were also collected in off-site areas west of MOTBY, but this data has not yet been provided to the Army. Analytical results for two surface and four subsurface soil samples collected from EBS Study Area 237 revealed no significant contamination above non-residential soil cleanup levels. No contaminants were identified in the surface soil samples from the 34th Street Park and Ride Site. However, three of seventeen subsurface soil samples had levels of arsenic (up to 102 mg/kg), copper (up to 10,700 mg/kg), lead (up to 2780 mg/kg), thallium (up to 2.2 mg/kg), and zinc (up to 12,200 mg/kg) above NJDEP non-residential soil cleanup criteria.

Groundwater was sampled from three monitoring wells constructed from three of the soil borings in the 34th Street Park and Ride Site on MOTBY. MW12 is located on the western perimeter of MOTBY, directly adjacent to the former Lehigh Valley ROW. MW13 is located on the northeast corner of the proposed site (in the southeast corner of EBS Study Area GBV). MW14 is located on the eastern side of the proposed site. Each well was sampled twice for TCL, TAL, and herbicides. In the second round of sampling, filtered samples were also collected to determine if metals are present as dissolved or particulate matter. Two samples from the second round were also analyzed for TPH. Analytical results for unfiltered groundwater revealed concentrations of metals, including aluminum, arsenic, iron, lead, manganese, and sodium, in all three wells above NJDEP Ground Water Quality Standards (GWQS) for Class II-A. Silver was also detected in unfiltered samples above GWQS Class II-A levels in monitoring well MW14. In filtered samples, sodium was found in all three wells above Class II-A standards, with arsenic, iron, and manganese also found above Class II-A standards in monitoring wells MW13 and MW14. The only organics detected above Class II-A standards were benzene and methylene chloride. Benzene was detected in MW12, which is located on the western perimeter of MOTBY directly adjacent to the former Lehigh Valley ROW and the Highway 169 ROW, at 1.4 µg/L. Methylene chloride was detected in MW13 at 2.1 µg/L.

The concerns raised by the NJ Transit LRT RI were inventoried as MISC-LRP-1 in the LRP Study Area with a category 6 level of concern.

These items are inventoried in the Table F-2 of Appendix F and are mapped on Figure F-1.

## **4.5 Disclosure Item Findings**

Disclosure items reviewed for the EBS include asbestos, PCB-containing equipment, lead-based paint, radon, drinking water quality, and indoor air quality. A profile of the current status of MOTBY's environmental permits was also prepared as part of this review.

Systematic base-wide surveys have been conducted for asbestos and PCB transformers only. There have only been limited site specific surveys conducted for lead-based paint, radon, and indoor air quality. Drinking water quality has been periodically monitored and tested. Inventories were only prepared for those items where sufficient information was available to provide environmental condition information on a site-specific basis, and these items include asbestos, PCB and non-PCB transformers, and lead-based paint. The remainder of the disclosure items are discussed in the text only.

### **4.5.1 Asbestos**

As part of the development of a Base-Wide Asbestos Management Plan, MOTBY retained Foster-Wheeler Enviroresponse, Inc. of Livingstone, New Jersey, an Asbestos Hazard Emergency Response Act (AHERA) accredited contractor, to conduct a base-wide survey from 1990 to 1992 to identify all areas and building materials with ACM. The purpose of the survey was to identify the friability, condition, damage, and accessibility of all ACM, in addition to identifying other factors such as activity, air movement, etc. which may affect potential exposure levels to ACM. The results of the ACM survey were used to conduct an exposure risk assessment, based on a logical risk algorithm, to establish a prioritization scheme for ACM abatement projects and facilitate long-term planning for the base facility engineering office (Ref. 253). MOTBY has used the survey and exposure risk assessment to identify ACM material in need of repair or control and to integrate asbestos concerns into other ongoing and periodic facility maintenance and upgrade projects.

Given the recent and comprehensive nature of the ACM survey, the site visit did not include an inspection of ACM material in buildings, since this would, for the most part, be duplicative of the 1992 effort. Instead, a summary of ACM found during the 1992 survey was inventoried for the EBS to allow users of the EBS to quickly identify building elements that contain asbestos, their location, and their map reference from the Foster Wheeler Survey. Table G-1-1 in Appendix G presents a building summary of asbestos status. Table G-1-2

summarizes the information on ACM identified in the ACM survey by facility. Specific location maps and more detailed information are available in the *Asbestos Management Plan for the Military Ocean Terminal Bayonne (MOTBY)*, Foster Wheeler Enviroresponse, Inc., July, 1992 (Ref. 253).

Since 1992, there have been various ACM abatement projects including the removal of asbestos found in Buildings 11, 51C, 31, 91F, 120, 91F, 130 during the demolition and removal of these structures. No management document was identified during the EBS file review which updates the ACM in particular buildings based on removal projects and thus the material enclosed in Appendix Table G-1-2 has not been updated from the original 1992 survey results except to eliminate the demolished buildings. Removal projects in the past 4 years have included removal of some ACM elements at Buildings 12, 22, 44B, 44C, in Goldsborough Village and probably in many other areas of the base (Ref. 6, 86, 113, 114, 136). Information in the EBS summary should be updated with more recent information from the base concerning the full scope of removals since the Asbestos Management Plan was developed in 1992. Asbestos abatement is ongoing at the facility.

The only other item of concern identified for asbestos during the file review was some limited inappropriate discarding of piping with attached asbestos insulation in solid waste piles near Buildings 1A, 102, and 105. This concern was identified during the Environmental Compliance Assessment (ECAS) conducted for MOTBY by Geophex, Inc. and completed in December 1994 (Ref. 189).

#### 4.5.2 PCB Containing Equipment

PCB transformers have been in use at MOTBY from probably sometime in the 1950s when PCB-containing oil began to be used as dielectric fluid. As of the early 1980s (the year of the first PCB Inspection Logs reviewed during the EBS), more than 80 PCB transformers, located in buildings across the facility, were in use. These PCB transformers, when located within structures, were most often in enclosed vaults (Ref. 501). Some were also located on outside concrete pads, or in substation yards. While PCB transformers and other PCB-containing equipment were distributed across the facility, large concentrations of PCB-containing equipment were found at the Building 105 and the Building 108 Substations (both used from 1944 to the present), and at the Building 61D Primary Substation (1977 to present). PCB Transformers at the base have included both those identified by the Toxic Substances Control Act (TSCA) as "PCB Transformers" (containing fluid with greater than 500 ppm PCBs) and those identified as "PCB-Contaminated Transformers" (containing fluid with 50 to

500 ppm PCBs). Non-PCB transformers, those containing fluid with less than 50 ppm PCBs, have also been in use.

Starting in 1982, MOTBY began converting to non-PCB transformers. No PCB transformers have reportedly been installed at MOTBY since the Final Ban Rule (40 CFR 761) went into effect in 1982 (Ref. 127). Since that time, MOTBY only purchased electrical transformers that utilized mineral oil as the dielectric cooling oil (Ref. 127). Starting in the 1980s, the MOTBY Fire Department tracked all PCB transformers and their inspection and maintenance history on computer printouts (Ref. 127). A review of some of these inspection records from the mid-1980s identified that periodic leaks, most of a minor nature, would occur at many of the transformers. The records show that cleanup and repair would generally follow at most of the identified leaking transformers. Larger leaks have been noted at several locations including at Building 55, Building 105, Building 108, and Building 235A although given that records only go back to the early 1980s, it is possible that larger spills and or leaks could have occurred at other transformers in earlier years of operation at the base (Ref. 94, 193, 259). The spills at the transformers in Building 105 and 108 were both noted as reaching either gravel or adjacent soil (Ref. 184, 259).

Staging of PCB transformers prior to disposal may have occurred at the equipment's original location or in many of the available warehouse locations. Storage of PCB oil and out of service transformers has been identified at several locations including the following: Building 111 (temporary storage of PCB items in 1990s during removal of PCB transformers); Building 103 (PCB drums storage in 1985); Building 105 (storage of PCB containers in 1980); Building 101 (transformer storage outside in early 1980s) and DPDO/DRMO storage in Building 63 and/or Lot 203. Details on storage of PCB transformers and fluid are discussed by individual location in the Hazardous Material Storage and Hazardous Waste Storage Inventories in Appendix C.

In 1992, MOTBY initiated a large-scale removal, replacement, and retrofill project of all PCB transformers at the facility. By February, 1994, all PCB transformers had reportedly been either removed from service or retrofilled with non-PCB fluid and no PCB transformers were in storage for reuse. In total, from 1985 through 1994, 87 transformers and almost 300 PCB containers and 2 bulk-waste containers consisting of PCB oil, soil and debris had been removed and disposed of. The last remaining PCB transformers were reportedly removed from the facility in mid-1994 (Ref. 197). While transformers were removed during this project, no record of confirmatory wipe or soil sampling was identified as part of the removal project during the EBS file review.

Former PCB transformers and their former locations are inventoried in Table G-2-1 and mapped in Figure G-2, both in Appendix G. Information on these items was collected from a review of available PCB inspection reports from 1980 to 1992, PCB disposal logs from 1985 to 1994, and PCB removal project documents. Some of the references to transformers found in the inspection, disposal, and removal logs were inconsistent, including the use of identical equipment numbers for different transformers. While an effort was made to eliminate problematic items, it is possible that the inventory may include errors inherent in the source material.

The inventory of PCB transformers identified 12 transformers, previously identified as PCB transformers, that base records indicate were removed, but which the PCB Disposal logs (1985 to 1994) do not identify. Eight of these transformers were removed prior to 1985 and thus, it is to be expected that they are not on the reviewed logs starting in 1985. No confirmatory PCB disposal log entry could be found for the remaining four transformers, although it is assumed that they have been removed (PCB-33-6, PCB-63-2, PCB-122-1, and PCB-122-2). The inventory of PCB transformers also identified four PCB-contaminated transformers that have no report or record of removal, and are thus presumed to still be in use (PCB-33-4, PCB-33-5, PCB-41-5, and PCB-94-1). Finally, the PCB inventory identified four transformers, previously identified as PCB transformers on inspection logs that have no record or report of removal (PCB-42-7, PCB-42-8, PCB-55-2, and PCB-82-3).

Non-PCB transformers were also inventoried so as to cross-reference with PCB transformers and also to provide a profile of the current equipment found at the base. The source material for this information also has informational problems. The latest list of non-PCB transformers is from the 1995 SPCC Plan (Ref. 39). However several transformers, including those at the Building 105 substation, were noted as missing from this document. Thus, the list of non-PCB transformers presented in Table G-2-2 in Appendix G may present some transformers not actually present at MOTBY as well as omit some transformers possibly present.

Reportedly, many of the large items of non-transformer PCB-containing equipment such as large oil switches were also removed during the recent PCB removal project. However, no comprehensive inventory of PCB-containing equipment (other than transformers) has apparently been developed at the base that would include all PCB-containing equipment such as capacitors, small oil switches, and compressors that may have PCB-containing cooling fluid. While some non-transformer items do show up on the PCB disposal logs for the base, without a complete inventory, there is no way to identify whether a building may continue to have some smaller PCB-containing items. A recent example concerns light ballasts. In 1993,



it was determined by the EMO that the typical 1960s-vintage ballasts made by Advance Transformer Company, which were in use at the facility, do contain PCBs, and the facility is currently collecting all swap-outs which have a date prior to 1993, for proper disposal (Ref. 801).

During the January 1996 site visit, it was noted that some of the transformers currently in use are not clearly labelled as to their non-PCB status. In addition, several small transformers were also noted that were not on current transformer lists such as the 1995 SPCC plan. In order to fully inventory all PCB-containing items on the base, and to clearly confirm that all PCB transformers have been removed from the base, all transformers would need to be clearly identified and labelled as to their PCB level and status and record-keeping updated. Transformers lacking sampling records of fluid levels would need to be tested to confirm their non-PCB status. Table G-3-1 in Appendix G presents a building summary of LBP status. Because of the lack of survey data, LBP status has been based primarily on assumptions described in Appendix G. Table G-3-2 of Appendix G presents an inventory of investigations associated with LBP.

#### **4.5.3 Lead-Based Paint**

Based on the available information, there has been no comprehensive survey of lead-based paint (LBP) occurring at MOTBY. However, limited sampling of painted surfaces and analysis for LBP has been conducted at select base facilities.

#### **4.5.4 Radon**

According to an undated questionnaire concerning MOTBY's environmental programs, "a comprehensive radon analysis study has been accomplished in accordance with applicable regulations" at MOTBY (Ref. 30). It is presumed that analytical results presented in a memorandum dated May 30, 1990 (Ref. 111) comprise a portion of this comprehensive survey. The memorandum presents the analytical results for 31 radon Alpha Track Monitors (ATMs) out of 65 ATM analyses which were ordered by MOTBY. Results for the 31 ATMs, which included duplicates and blanks indicate no detection of radon at concentrations greater than 4 picoCuries per liter (pCi/L) (detection limit). No details concerning sample locations were provided.

#### 4.5.5 Drinking Water Quality

MOTBY purchases potable water from the City of Bayonne. A discussion of the fresh water distribution system is provided in Section 3.3.1.

Both the City of Bayonne and MOTBY conduct drinking water monitoring. MOTBY has taken part in the Army Drinking Water Surveillance Program (DWSP) since at least 1977 (Ref. 105). However, no comprehensive summary of current drinking water monitoring requirements was recovered during the EBS records search. A MOTBY laboratory technician indicated during the EBS inspections that MOTBY provides daily monitoring of pH, temperature, and chlorine residual. In 1988, monthly analyses of total coliform, pH, chlorine, and fluoride were reportedly provided by PVNTMED (Ref. 99). Additional records indicate that drinking water is monitored monthly for microbiological activity (Refs. 99, 142). Finally, requirements to monitor for contaminants listed in the National Primary Drinking Water Regulations (NPDWR) and the National Secondary Drinking Water Regulations (NSDWR), as well as select volatile organic compounds have also been cited (Ref. 97).

MOTBY drinking water has been reported to be of good quality over various time periods from 1977 to 1992 (Refs. 30, 105, 142). USAEHA reportedly conducted an Environmental Program Review (EPR) of the MOTBY potable water systems in March 1990. Although the cited document has not been recovered, potable water reportedly met "applicable NPDWR and NSDWR requirements" (Ref. 142). In 1988, complaints concerning the color and odor of drinking water were reportedly filed approximately once per month. Flushing of the distribution system was conducted as a method to eliminate taste and odor problems (Ref. 99).

In 1992, "preliminary" monitoring of lead in drinking water was conducted at MOTBY (Ref. 17). As part of the monitoring, 90 samples of first-draw tap water were obtained from potentially high risk locations including cold water taps in kitchens, bathrooms, and water fountains. The locations were reportedly selected from areas that were most likely to have elevated concentrations of lead in tap water. A total of 12 samples contained lead concentrations of 15  $\mu\text{g/L}$  or greater. The report offered the following recommendations. The Building 72 rest rooms should be investigated further to determine the sources of lead; manufacturers of fountains which exhibited high concentrations of lead should be contacted to check the content of lead used in the materials of connecting pipes and tanks; two apartment samples showing high concentrations should be resampled; and plumbing in personnel areas that are unused for long periods should be flushed periodically. No record of these investigations or improvements has been recovered.

#### **4.5.6 Indoor Air Quality**

Based on the available information, there has been no comprehensive survey of indoor air quality at MOTBY. In 1990, the USAEHA conducted an evaluation of the Indoor Firing Range (Building 72A) with respect to potential health risks associated with user exposures to airborne lead. The scope of the study was limited to assessing the performance of the firing range ventilation system using air flow measurements and design analysis, and performing air and wipe sampling. Work practices were also reviewed.

The study concluded that shooters sampled during the evaluation were exposed to lead levels which, if not controlled, could present a definite health risk. The following recommendations were made: electronically interlock the exhaust and makeup air systems; install an automatic target retrieval device; reduce the shooters' personal exposure limits, enabling the Army to classify the range from "limited" to "safe;" provide tempered makeup air; reduce the makeup air fans revolutions per minute (RPMs) to achieve a non-turbulent air flow across the firing line; periodically clean the firing range; provide personnel assigned to cleanup with appropriate respirators; and conduct exposure monitoring. None of these recommended improvements have been made, although periodic cleaning may be performed (Ref. 801).

#### **4.5.7 Permit Status**

##### **4.5.7.1 NJPDES Permits**

NJPDES Permit No. 0020257, which became effective May 1, 1985 and expired April 30, 1990, authorized MOTBY to discharge from two locations to Upper New York Bay (Ref. 274). Discharge 001 consisted of non-contact cooling water associated with the cold storage facility (Building 35). When the facility ceased operation in 1992, this discharge was eliminated. MOTBY continues to discharge effluent from its STP under this permit. As part of the permit, effluent restrictions are imposed for flow, BOD, TSS, fecal coliform, and oil and grease. Influent and effluent monitoring requirements for 5-day BOD, settleable solids, suspended solids, residual chlorine, fecal coliform, pH, temperature, oil and grease, and petroleum hydrocarbons are summarized in the NJPDES permit. The permit was subject to a mass modification in 1992, which consisted of minor changes in monitoring/reporting requirements for percent removal efficiencies (Ref. 42).

Sludge generated at the STP is managed through the operation of phragmites reed grass beds. A new draft NJPDES permit (No. 0108251) was issued for the operation in December 1995. Conditions to operate the system were previously contained under NJPDES Permit No. 0020257 (see above). The surface water discharge aspects of the STP continue to

be regulated under NJPDES Permit No. 0020257, while the phragmites system process and monitoring requirements are outlined in NJPDES Permit No. 0108251 (Ref. 297).

MOTBY is currently authorized to discharge stormwater under NJPDES General Permit No. 0088315, which became effective July 7, 1993, and expires November 1, 1997. As a requirement of the permit, MOTBY developed an SPPP, which identifies source material storage areas, non-stormwater discharges, and best management practices which focus on pollution prevention.

The Bethlehem Steel Corporation was issued a permit to discharge waters from the dry dock, which it leased from 1977 to 1982, sometime between 1977 and 1980 (Refs. 105, 193, 241). This permit, which expired at an unknown date, was not recovered during the EBS records search.

According to a representative of the NJDEP Bureau of Standard Permitting, Hoboken Shipyards was authorized to discharge waters from the dry dock under NJPDES Permit No. NJ0030520. This permit was issued on September 1, 1984 and expired on September 1, 1989. The permit, which was not recovered during the file search at NJDEP, was later located by NJDEP within archived microfiche files.

#### **4.5.7.2 Requirements and Air Emission Permits**

During normal operations, MOTBY is required to comply with all Federal, State, Interstate, and local air pollution regulations as per Army Regulation 200-1. Applicable regulations include Titles I, III, and V of the Clean Air Act of 1977, as amended in 1990 (CAAA-90), Titles XXVI, IXXXX, and LIV of the New Jersey Air Pollution Control Laws, and the regulations promulgated by the Hudson Regional Health Commission.

For the purposes of air quality planning, the EPA has designated certain regions of the county as specific air quality control regions (AQCR). The air quality in these regions are then compared to the National Ambient Air Quality Standards (NAAQS) to determine what actions should be taken to prevent further deterioration of air quality in these regions. MOTBY is located in the New York - New Jersey - Connecticut Interstate Air Quality Control Region which has been evaluated as a "non-attainment" area for carbon monoxide and ozone and "better than NAAQS" for sulfur dioxide and nitrogen dioxide. As a result, MOTBY is required by Title I of the CAAA-90 to maintain an inventory for all substances that contribute to ozone formation: total nitrogen oxides (NO<sub>x</sub>), carbon monoxide, and volatile organic compounds (VOCs) sources. Furthermore, since MOTBY has the potential to emit 149 tons of nitrogen oxides per year, it also has the distinction of being a "major" source

of these pollutants. A "major" source is defined under Title I as any facility or piece of equipment able to emit 25 tons per year or more of NO<sub>x</sub> or VOCs.

Title V of CAAA-90 was promulgated to provide an enforcement mechanism to the air quality regulations. It requires all major sources to apply for an operating permit which encompasses the requirements of most of the other regulations in effect. As of this writing, MOTBY has completed its draft Title V Permit Application and will be submitting it for review.

Potential and actual emissions at MOTBY are calculated from the emissions of equipment and activities that occur at the facility. Sources of emissions at MOTBY include boilers, generators, painting operations, printing operations, photographic developing operations, woodworking operations, fuel storage and distribution, sewage treatment, firefighter training, pesticide application, as well as the landfill and the firing range. Of these the most significant sources of emissions are the boilers and the gasoline station.

In addition to the Title V Permit, which will require constant maintenance, MOTBY has permits for its storage tanks, the gas station pumping equipment, and the landfill.

In accordance with Section 120(h)(4) of CERCLA and the DoD *Policy on the Environmental Review Process to Reach a Finding of Suitability to Lease* (Ref. 912), an environmental evaluation of adjacent properties was conducted as part of the MOTBY EBS. The purpose of this evaluation is to assess properties adjacent to MOTBY for their potential current and past contribution to site conditions at MOTBY as well as for the potential impacts that MOTBY activities may have had on them. The adjacent property evaluation performed for MOTBY included the identification of adjacent properties, a search of relevant federal and state databases, and a subsequent visual inspection of adjacent properties to the extent permitted by the owners or operators. Section 5.1 defines adjacent properties for the purpose of this report and presents the approach taken in evaluating them. Section 5.2 presents a brief summary of the history of the areas surrounding MOTBY and a general description of the predominant land uses. Section 5.3 lists all of the adjacent properties evaluated and summarizes the results of the property ownership investigation performed as part of this task. Section 5.4 presents the results of the database search of relevant federal and state databases, (conducted in accordance with American Society for Testing and Materials (ASTM) standards), and identifies properties where hazardous materials are, or have been, used or generated. Findings of the off-base property evaluation are summarized in Section 5.5. Tables 5-1 through 5-4 provide detail for the findings discussed in the text.

## 5.1 Approach to Adjacent Property Evaluation

Adjacent properties as defined by the DoD guidelines for the preparation of an EBS are "those properties that are contiguous to the boundaries of the property being surveyed or other nearby properties." Specifically, for the purpose of the MOTBY EBS the following criteria were used in selecting adjacent properties to be evaluated: (1) all properties contiguous by land and (2) all properties contiguous by water which include waterfront properties on the southern edge of the peninsula to the north of MOTBY and waterfront properties on the

northern edge of Constable Hook to the south of MOTBY. In addition to identifying all properties adjacent by land and water, federal and state database searches were conducted to identify properties of potential environmental concern within a 1-mile radius from MOTBY. The following steps were taken in conducting the adjacent property evaluation.

- **Property ownership search.** To obtain property boundaries, acreage, current owner, address, and tax map identification numbers, title update searches were performed for the properties adjacent to MOTBY (Ref. 301, 802). Search results were integrated with observations noted during site visits and information relevant to adjacent properties obtained as part of the EBS research activities.
- **Federal and state database searches.** A search of federal and state computerized databases was performed in December 1995 by Environmental Risk Information and Imaging Services (ERIIS) (Ref. 302) to identify nearby sites reported as using or having used or generated hazardous waste and that could potentially impact the MOTBY property. In addition, the New Jersey Spill database was reviewed for records of spills associated with adjacent properties (Ref. 314).
- **Visual and/or physical property inspections and review of aerial photography.** To supplement the property ownership search and the ERIIS database search, letters requesting right of entry for a physical inspection were sent out to landowners of 40 properties via the MOTBY Base Transfer Office (BTO). For those properties for which right of entry was obtained, property visits (physical site inspections) were conducted to identify potential environmental concerns. In the case of properties for which no right of entry was obtained, visual inspections were conducted in the following manner: observations were made from inside the base, from public right-of-ways, and from other adjacent properties for which right of entry was granted; and available historical and recent photographs including aerial photographs showing properties adjacent to MOTBY were reviewed (Ref. 614, 712, 715, 722, 724). The visual and/or physical inspections of identified adjacent properties focused on environmental factors (USTs and hazardous material handling practices) which could result in potential impact on the environmental condition at MOTBY.
- **Property evaluations.** Adjacent properties were evaluated for their potential to contribute to MOTBY contamination based on their location with respect to MOTBY; the ASTM search results; information obtained through research, visual property inspection, size of the property; and the presence of waste or the waste handling practices at the site.

## **5.2 Land Use and General History near MOTBY**

The following section provides a brief discussion of the current land use of the areas surrounding MOTBY, information concerning their historical development and use, and information relating to current and past incidents of environmental concern.

### **5.2.1 Land Use**

Land surrounding MOTBY can be divided into three main areas: the area to the west of MOTBY including Route 160; the Port Jersey Channel and Pier to the north of MOTBY; and Constable Hook to the south of MOTBY. As shown on Aerial Photograph 5-1, the majority of the area surrounding MOTBY is developed and used for industrial purposes. In fact, Port Jersey and Constable Hook are two of the four principal industrial districts in Bayonne (Ref. 234).

#### **5.2.1.1 Area West of MOTBY**

The area to the west of MOTBY consists primarily of a public right of way, residential properties, and light commercial properties. The western portion of MOTBY property is bounded by Route 169 along the southwestern corner up to 36th Street and by a narrow strip of land belonging to Conrail between 36th Street and Center Street. The abandoned Lehigh Valley Railroad tracks used to exist immediately west of MOTBY on the Conrail property. The tracks have been removed and the land is currently used as an easement for several petroleum transmission lines. A 14-inch line is owned by Hess Oil, and two 12-inch lines are owned by the International Maytex Tank Terminal (IMTT). A natural gas line owned by PSE&G is also located in this easement. Two active storm sewers (15 and 18 inches) and an abandoned 18-inch sewer exist adjacent to this location (Ref. 49). To the west of Route 169 is a second, wider Conrail railway line right of way (ROW). To the west of the Conrail ROW, land use is primarily residential. Residences occur on the east and west sides of Avenue E running parallel to Route 169 and the western boundary of MOTBY. Exceptions to the residential land use west of MOTBY include several gas stations on E Street (Shell, Gulf, Exxon, Texaco), an auto servicing station (Doolan's Auto Service) located on the east side of E Street, and a triangular portion of land between Prospect Avenue and Route 169 used for manufacturing purposes by Hicor Associates (Bayonne Nipple Corporation, Hudson Pipe and Supply Corporation, and Hudson Iron and Metal Corporation) (Ref. 802).



#### **5.2.1.2 Port Jersey Pier**

Port Jersey is an area of approximately 400 acres located both in Jersey City and in Bayonne. The Bayonne portion of the peninsula is approximately 160 acres (Ref. 234). Port Jersey is developed primarily with warehousing and distribution facilities on its western end and with more warehousing and an auto import/export facility on the eastern end. The two largest users of the Port Jersey Pier are warehouse storage and distribution services including Northeast Auto Marine Terminal occupying approximately 103 acres and located on the eastern portion of the Pier, and Global Terminal and Container Services, Inc., occupying approximately 91 acres of the central portion of the Pier. There are no residential areas and no vacant areas on Port Jersey (Ref. 802).

#### **5.2.1.3 Constable Hook**

Constable Hook, to the south of MOTBY, consists of approximately 727 acres of property (Ref. 234). Originally developed in the 1900s by Standard Oil Corporation (later Exxon), it currently contains the largest concentration of industry in the city of Bayonne. Heavy industrial and petrochemical activities are generally located south of East 22nd Street while the warehouse/distribution activities are located along North Hook Road. The largest single user on Constable Hook is currently the IMTT which acquired 450 acres from Exxon in April 1993. The largest vacant industrial parcel in the City (approximately 80 acres) is located on the northwestern edge of the peninsula and is being marketed by its owner, PSE&G. The PSE&G property is actually 403 acres but only 83 acres are upland while the remaining 316 acres are in the channel between MOTBY and Constable Hook and are undevelopable due to restrictions on filling in the New York Bay. There are three additional vacant lots on Constable Hook: a parcel, owned by the City of Bayonne, that includes the closed municipal landfill and a composting operation; an area, comprised of two former Conrail yards, south of the Route 169 extension and east of the intersection of the latter and Oak Street; and a Conrail Yard south of Hook Road (Ref. 234, 802).

#### **5.2.2 History of Development and General Environmental Concerns**

The majority of the area surrounding MOTBY and in particular Constable Hook and the Port Jersey Pier have had long histories of industrial development. Localized and wide-spread environmental concerns in the vicinity of MOTBY have gone hand in hand with development and are typical of other historical industrial areas in the United States.

### **5.2.2.1 Area West of MOTBY**

The area west of MOTBY has historically been used primarily for residential purposes (Ref. 707, 709). Exceptions to this use are gasoline stations on the west side of Avenue E, petroleum and gas easements along Route 169 and on the Conrail property, and a triangular portion of land used for manufacturing, located at the intersection of Prospect Avenue and Route 169. The Lehigh Valley railroad tracks formerly ran parallel to and west of Route 169 before they were removed. The area located immediately north of MOTBY in the abandoned Lehigh Valley railroad tracks was sampled as part of the NJDOT Route 169 section 1G ROW Assessment. The findings of this study are summarized in the section below and on maps included as Appendix I.4.

### **New Jersey Department of Transportation (NJDOT) Highway 169 Right-of-Way (ROW) Investigations (1991 - 1994)**

In 1991, NJDOT began to planning to upgrade Section 1G of Highway 169 between 30th Street in Bayonne and Harbor Drive in Jersey City, from a two-lane to a four-lane highway. The Highway 169 ROW was to be expanded into a Conrail ROW which was adjacent to the western boundary of MOTBY. In 1991 and 1992, NJDOT conducted ROW assessments which identified various surface and subsurface sources of contamination within and outside the proposed area of construction. A remedial investigation conducted in 1993 and 1994 further characterized contamination relative to roadway construction and rights-of-way.

Several potential sources of contamination relevant to the eastern edge of the 169 ROW were identified: metal manufacturing operations at the Hicor Associates property, the former Lehigh Valley Rail Road ROW in the existing Conrail ROW, three petroleum product lines (one 14-inch Amerada Hess line and two 12-inch IMTT lines) in the Conrail ROW, the use of historic fill, and potential groundwater contamination from sources outside the 169 ROW such as USTs at Hicor Associates, along Avenue E, and at MOTBY (Ref. 316). The summary of NJDOT investigations is presented below and is divided in three parts: from 32nd Street to 500 feet north of Prospect Avenue, from 500 feet north of Prospect Avenue to the Center Street Bridge, and from the Center Street Bridge to Pulaski Street.

Along the east edge of Route 169 from the southwest corner of MOTBY property to 500 feet north of the Prospect Avenue entrance (NJDOT Station 122 to 143 - East), surface and subsurface soils were found to be contaminated with petroleum, hydrocarbons, PAHs, and heavy metals at concentrations exceeding NJDEP non-residential soil cleanup criteria.

Groundwater was found to have free petroleum product and dissolved concentrations of metals and benzene above GWQS Class II-A standards (Ref. 316)

Surface soil concentrations for petroleum hydrocarbons ranged from non-detect to 1,110 mg/kg. Subsurface concentrations ranged from 28.7 to 19,100 mg/kg with an average concentration of 3,456 mg/kg, suggesting wide spread petroleum product at the groundwater zone between four and six feet below ground surface. Surface and subsurface soil contamination were found to be particularly heavy in an area approximately 125 to 175 feet south of the Prospect Avenue entrance where contamination exceeded non-residential soil cleanup standards for heavy metals, PAHs, and petroleum hydrocarbons. Metal bearing soils and residuals from metal product manufacturing were also encountered in test pits across this segment. Materials uncovered in a test pit approximately 550 feet north of the Prospect Avenue entrance were found to be comprised of various types of fill. A layer of highly colored (blue, dark green and yellowish green) material was encountered 1.5 to 2.5 feet below ground surface at one location. Soil analysis showed concentrations of copper ranging from 13,700 to 21,700 mg/kg and nickel ranging from 35,600 to 57,000 mg/kg, exceeding NJDEP non-residential cleanup criteria. Visible presence of discolored soils adjacent to the this material indicated the presence of leaching of metals (Ref. 316).

Free oil product was observed above the groundwater in test pits north and south of the Prospect Avenue entrance. Groundwater in monitoring well MW4, 225 feet north of Prospect Avenue entrance was found to contain free product on the surface, diesel outside the range of the analysis, and dissolved concentrations of benzene (8.3  $\mu\text{g/L}$ ), arsenic (5.8  $\mu\text{g/L}$ ), beryllium (21.6  $\mu\text{g/L}$ ), and nickel (80  $\mu\text{g/L}$ ) above GWQS Class II-A criteria (Ref. 316). Along the eastern edge of Highway 169 from 500 feet north of the Prospect Street entrance to the Center Street Bridge (NJDOT Stations 143 to 168 East), soil contamination was found to be limited, but groundwater was found to contain lead above cleanup standards and trichlorofluoromethane. Pesticides (less than 1 mg/kg), PAHs (ND to 0.804 mg/kg), and petroleum hydrocarbons (56.8 to 219 mg/kg) were found in surface soil. The only exceedance of non-residential soil cleanup criteria was benzo(a)pyrene (at 0.804 mg/kg) in one sample south of the Center Street Bridge. Subsurface soil contained petroleum hydrocarbons ranging from non-detect to 20,300 mg/kg. Groundwater in test pits and wells contained levels of dissolved lead (5.7 to 110  $\mu\text{g/L}$ ) above GWQS Class II-A standards and trichlorofluoromethane about (30  $\mu\text{g/L}$ ), which has no GWQS Class II-A standard (Ref. 316). During May, 1991 field work, surficial seeps of reddish-brown water with a suspected oil sheen were observed to be flowing from MOTBY soils into the ROW (Ref. 315). Based on research conducted during

the EBS, the source of this seep is likely to be the septic system at former Building 230 (see Section 4.3.2 and Table E-2 in Appendix E).

Along the eastern edge of Highway 169 from the Center Street Bridge to Pulaski Street (NJDOT Stations 168 to 178), several potential sources of contamination were identified including: the long-term influence of industrial and rail operations, nearby oil pipelines, and industrial fuel storage facilities. This area is not directly adjacent to MOTBY, but is located immediately west of several properties directly adjacent to MOTBY. Surface soil contamination from Center Street to 500 feet north was found to be limited and consist of cinders, discolored soils, and debris along rail spurs. Soil contamination (surface and subsurface) was concentrated near industrial loading docks from about 500 feet north of the Center Street Bridge to Pulaski Street. Soil analysis in this area showed PAHs (benzo(a)pyrene ranging from 0.213 to 1.85 mg/kg) and petroleum hydrocarbons (ND to 20,300 mg/kg). Elevated levels of dissolved and suspended metals were detected in waters sampled from the storm drainage systems at the intersection of Pulaski Street and Route 169 suggesting contamination from industrial activities and/or vehicle exhaust.

Although contamination of the western edge of the 169 ROW is less relevant to MOTBY, given its distance from MOTBY property, it is briefly described below due to the potential for migration onto MOTBY. The long-term (over 60 years) industrial operations at the Hicor associates property west of 169 have resulted in surface and subsurface contamination primarily by petroleum hydrocarbons, PAHs, PCBs and heavy metals with many locations containing contaminants above non-residential soil cleanup criteria. A portion of this material is likely to have been spread along the 169 ROW in the 1960s when the highway was cut from the Hicor property. Petroleum product was also noted in groundwater at this property. In the area between the Hicor Associates property and Pulaski Street, 50 years of rail traffic has resulted in medium to low concentrations of metals, petroleum hydrocarbons, and PAHs generally within non-residential cleanup criteria, except for the limited presence of arsenic in rail ballast. Groundwater contamination in the form of petroleum distillates was identified at two locations, near the 40th Street Bridge and 400 to 600 feet north of the Center Street Bridge. Probable sources identified were gasoline underground storage tanks along Avenue E and spillage along the rail line.

As of early 1996, the widening project was underway. The Remedial Action Plan for the project indicated that soil and metal wastes that failed hazardous waste criteria would be removed and disposed off-site, and soil that failed non-residential criteria would be covered by roadway surfaces or with 2 feet of soil that passed the criteria. Groundwater withdrawn from project area was to be discharged back into the local aquifer by means of discharge

basins or trenches cut into the project right-of-way (Ref. 317). While these measures will reduce exposure to users of the 169 ROW, migration concerns still exist relevant to some of the identified contamination.

Overall contaminants in groundwater included petroleum product, petroleum hydrocarbons, lead, and several other metals. Soil contaminants include petroleum hydrocarbons, PAHs, and metals. The potential for migration of groundwater is considered likely, particularly given the proximity and downgradient location of MOTBY property relevant to the 169 ROW. In addition, metal-bearing fill similar to that used in the 169 ROW, may have also been used for rail lines or roadways along the western perimeter of MOTBY. These results have been taken into consideration in evaluating the western perimeter Study Areas (NY5, LRP, GBV, 230, 234, 235, and 237).

#### **5.2.2.2 Port Jersey**

The larger part of the Port Jersey Pier was constructed between 1967 and 1973 (Ref. 707, 709). The Port Jersey Pier was constructed on hydraulic fill. Fill consisted of sand dredged from the current Port Jersey Channel (Ref. 802). Aerial photographs indicate that prior to the construction of the Port Jersey Pier, the western portion of the area was used for light industrial purposes including warehouse storage and distribution (Ref. 707). Industrial development on the Port Jersey Pier continued since its construction. The last parcel of vacant land on the Port Jersey Pier was developed in 1987 when the New Jersey Port Authority constructed an automobile transshipment terminal on 103 acres of the eastern end of the peninsula. Table 5-4 lists records of spills associated with activities on the Jersey pier. No other issues of environmental concern were identified during the adjacent property evaluation.

#### **5.2.2.3 Constable Hook**

Constable Hook has a long history of industrial development, and since the late 1800s has been occupied primarily by the petrochemical industry. In 1875, the Prentice Refining Company established a kerosene refinery in the Constable Hook area. In 1877, this area and several other parcels on Constable Hook were purchased by John D. Rockefeller for Standard Oil Company (Ref. 318). By 1885, Standard Oil had built a small industrial city on the Hook including ten condensers, sixty tanks, a barrel factory, and crude oil pipelines receiving crude oil from Texas. Reports of environmental concern date back to as early as 1885 with leaking pipelines and disposal of "sludge acid" (bottom residue from oil purification processes) into local tidelands. In 1900, a massive fire consumed numerous Standard Oil storage tanks

resulting in significant spillage of oil onto the ground and into New York Harbor. Fire containment included the digging of large trenches to drain tanks before the fire could reach the oil (Ref. 299). More recently, in 1979, a fuel oil spill, reportedly by Exxon, contaminated the MOTBY shoreline at the southwestern corner of the installation (Ref. 193). According to the Environmental Specialist for the City of Bayonne, large portions of the IMTT property (formerly Exxon and Standard Oil) are still underlain by free-floating petroleum product due to the long history of petroleum spills and leaks on Constable Hook (Ref. 248, 802). Table I-1 in Appendix I.3 lists the more recent (1986 to 1995) spill records associated with Exxon (formerly Standard) and IMTT activities on Constable Hook. The following sections provide additional detail on environmental concerns pertaining to Constable Hook.

### **Summary of Exxon Investigations at Constable Hook**

Investigations have been conducted to assess the potential effect of historical Exxon activities on Constable Hook. A recent Phase I remedial investigation concluded that 17 non aqueous phases liquid (NAPL) plumes consisting primarily of diesel, No. 2 fuel oil, No. 6 fuel oil, kerosene, and lube oil, underlay various areas of Constable Hook. In the groundwater, iron, manganese, and TPH were detected above the NJDEP standards or the IGGWQ. Other constituents observed at lower frequencies in the groundwater were VOCs, SVOCs, and metals (Ref. 318). In surface and subsurface soil, the following constituents above the NJDEP non-residential direct contact or impact to groundwater soil cleanup criteria were detected on a site-wide basis: TPH, arsenic, and benzo(a)pyrene. PAHs and metals were also detected in soils, but at lower frequencies and were area-related.

Preliminary results of remedial investigations suggest that 11 of the plumes have potential for migration either in their NAPL state or in their dissolved state, four are stable, and two are contained by an interceptor trench (Ref. 318). Based on the Phase I RI results, the identified plumes might affect sediments and surface water quality adjacent to Constable Hook, but do not suggest a potential for direct groundwater contamination at MOTBY. Discharge of groundwater from Constable Hook to upper New York Harbor may be affecting surface water quality, but it is unlikely that this will be detectable in wastes adjacent to MOTBY. The large amounts of existing NAPL releases to groundwater and existing soils contamination with metals at the Exxon plant imply a strong probability of impacts on sediments adjoining Constable Hook. These might affect both metals levels and persistent organics levels in sediments at MOTBY, primarily on the south side of MOTBY opposite Constable Hook.

Phase II remedial investigations are currently being conducted to further characterize plumes with potential for migration and to propose remediation alternatives. Table I-2 in Appendix I lists the various contaminant plumes and their location on Constable Hook. A map delineating the probable extent of each plume is also included in Appendix I.

#### **City of Bayonne Landfill**

The northern shore of Constable Hook, south of MOTBY, is also the site of the former City of Bayonne Landfill which operated in the 1930s and continued to be used until about 1983 when it was capped with 6 inches of clay. Standard Oil was a former owner of the site, using the site from 1877 until the 1930s and having reportedly disposed of approximately 700,000 cubic feet of organic and inorganic oil wastes from its petroleum refining industry at this location (Ref. 112). The City Landfill was reportedly poorly managed and received unidentified industrial waste while it served as a municipal dump in the 1950s. In 1978, MOTBY personnel noted that refuse material was being dumped at the water's edge and tidal flow was carrying debris to the MOTBY shoreline (Ref 193). The City of Bayonne Engineer's Office currently oversees the dump. Groundwater sampling wells were installed at the site and groundwater sampling is conducted quarterly. Samples contain high levels of volatile compounds and lead (Ref. 802). According to the City's environmental specialist, the landfill was set in sand which suggests that despite capping landfill contaminants have likely migrated north and east into the channel.

#### **5.2.2.4 Potential Widespread Chromium Contamination**

Chromium is known to be a frequent problem in the North Jersey towns near Jersey City, including Bayonne. Over the last century several large companies, including Mutual Chemical, Maxis, and PPG (presently Allied Signal, Occidental, and PPG), have used chromium in their operations in Jersey City. Between the 1940s and the 1960s, chromium slag, which has similar compaction qualities to clay, was sold for \$1.00 per ton, and used in the area as fill material. To date, this chromium slag has been found in 200 locations in Hudson County. Three different kinds of slag material have been identified: shale grey flat pancake, round granular, and smooth pebbles. No use of chromium waste as fill at MOTBY and no evidence of chromium waste fill has been found or identified to date at MOTBY, according to records reviewed for the EBS. Thus, no specific areas are currently identified as concerns for chromium waste fill at MOTBY. However, given the frequency of this problem in Hudson County, consideration should be given to this potential in any future investigation of fill material at MOTBY.

### 5.3 Surveyed Properties

A total of 19 properties adjacent to, or in the vicinity of, the base boundary were considered in the off-base property evaluation. As described above, physical inspections were conducted on properties for which right of entry was obtained. The physical inspections consisted of a site visit and an interview with the base operator, if present. No sampling was conducted. For the remaining properties a visual inspection was conducted from MOTBY, nearby public ROWs, or from other adjacent properties for which right of entry was obtained. Table 5-1 lists all the surveyed properties and a summary of all the relevant findings obtained as part of the EBS adjacent property evaluation. Figure 5-1 identifies the specific locations of the properties listed in Table 5-1 and summarizes the land use in the area surrounding MOTBY. Unless specifically noted in Table 5-1, no evidence of contamination of environmental concern was identified on the properties inspected.

### 5.4 Agency Record Search

Records maintained by federal, state, and local agencies were searched to identify sites reported as using hazardous materials or generating hazardous waste in the vicinity of MOTBY. The data reviewed included information on: treatment, storage, and disposal facilities; facilities with underground storage tanks; facilities with leaking underground storage tanks; and uncontrolled or abandoned hazardous waste sites. The agency record search consisted of a search of computerized federal and state environmental compliance databases.

The search of federal and state computerized databases was performed in December 1995. Sites identified in the computer records search were evaluated and screened using the minimum search distances recommended by the American Society for Testing and Materials (ASTM) guidelines for conducting Phase I Site Assessments (Ref. 302). A list and description of the databases included in the search and the specific search distances considered for sites identified in the agency databases are described in Table 5-2. A summary of all sites identified within 1 mile of the land perimeter of MOTBY is presented as Table 5-3 and identified on Figure 5-2. In addition to the above-mentioned search, the New Jersey State Spill database was searched for records of spills associated with properties listed in Table 5-1 and for other properties of potential concern. The evaluation of off-base properties is focused primarily on sites within  $\frac{1}{4}$  mile of the base boundary and in particular those sites that are listed as adjacent properties in Table 5-1. The state and federal database search results for the area within approximately 1 mile of MOTBY are included to ensure that all potential sites of concern in proximity to the base are identified.



A total of 6 RCRA large quantity waste generator sites, 7 RCRA small quantity generator sites, 10 New Jersey underground storage tank sites, 3 New Jersey leaking underground storage tank sites, and 2 Solid Waste landfill sites were identified within a ¼ mile radius of MOTBY. Six of these sites are also identified as properties adjacent to MOTBY in Table 5-1. These properties include the Bayonne Durable Recycling Center, the Bayonne Nipple Corporation, the City of Bayonne Landfill, the Global Terminal and Container Service, the Northeast Auto Marine Terminal, and Unimark Inc.

Table 5-4 lists New Jersey recorded spills associated with adjacent properties. Table I-1 in Appendix I.3 lists New Jersey recorded spills associated with Exxon (Standard Co) and IMTT activities on Constable Hook.

## **5.5 Findings**

Based on the record search, review of available documents, and site inspection of adjacent properties, there are currently no areas on MOTBY where contamination can be directly attributed to activities at an adjacent property. Similarly, there are no adjacent properties where it is known that contamination has migrated from MOTBY. However, there are two general areas, Constable Hook and the area to the west of MOTBY, of potential concern in the vicinity of the MOTBY property. The concerns associated with these areas and more minor environmental concerns are summarized in the sections below.

### **5.5.1 Primary Adjacent Property Concerns**

Constable Hook and the area to the west of MOTBY constitute areas of primary concern in this adjacent property evaluation. Specific issues of concern within these two areas are summarized below.

Based on the results of the NJDOT Route 169 Section 1G ROW assessment, the area immediately to the west of the MOTBY property could potentially be contributing to contamination at the base. Conversely it is also possible that leaking of underground storage tanks in the western part of MOTBY may have impacted this area. Likely sources of the contamination on the Route 169 and the Conrail ROWs adjacent to MOTBY include the Lehigh Valley railroad, and IMTT and Hess product pipelines, Hicor Associates metal manufacturing activities (Bayonne Nipple Corporation and Hudson Iron and Metal Co.), and petroleum storage structures in the area. The Bayonne Nipple Corporation, located in a triangular parcel of land belonging to Hicor Associates, was listed as a large quantity RCRA generator site for hazardous waste code F002 which corresponds to spent halogenated

solvents. A 250-gallon AST without padding or containment and two gasoline pumps, suggesting the presence of at least two USTs were observed on this property during E & E adjacent property visits. The results of the NJDOT studies are important in evaluating contamination at MOTBY particularly in those study areas that are immediately contiguous with the Route 169 and Conrail ROW (NY5, LRP, GBV, 230, 234, 235, and 237).

The historical use of large portions of Constable Hook by Exxon/Standard Oil Corporation for petroleum refining, storage, and transportation has potentially contributed to contamination at Constable Hook or in the groundwater underlying it. Standard Oil used the property from 1877 until the early 1990s. Although Exxon is no longer the owner of the majority of the property it has maintained environmental liability for the contamination and is responsible for site cleanup. Results of preliminary remedial investigations suggest that Constable Hook is underlain by seventeen plumes of free-floating petroleum product resulting from the long history of petroleum spills and leaks on Constable Hook (Ref. 248, 315, 802). Eleven of these plumes were determined to have potential for migration. Further investigations are currently being conducted to better characterize and present remedial alternatives for those plumes that have the greatest potential for migration (Ref. 318). In addition, numerous recorded surface spills have occurred on Constable Hook and in surrounding waters. The main area of concern is the southern shore of MOTBY that may have been impacted by surface spills and contamination of sediments.

The Bayonne City landfill, located on the northern shore of Constable Hook across from MOTBY, is listed as a large quantity hazardous waste generator. The landfill area was set in a permeable sand matrix and was originally used in the late 1800s by Standard Oil Corporation. Based on records of poor waste management practices, the landfill property is likely to have contributed to contamination in the channel between MOTBY and Constable Hook as well as to contamination on the southern shore of MOTBY. Finally the PSE&G parcel located on the northern boundary of Constable Hook is also included as an adjacent property of potential concern. The PSE&G property includes a backup generating facility with several ASTs. According to the City of Bayonne Environmental Specialist, heavy metal contamination has been identified at this site. It is possible that these heavy metals have migrated into the channel towards the southern shore of MOTBY. The majority of the PSE&G parcel is currently vacant; reuse plans which have been proposed for this site include developing the area as a golf course (Ref. 802).

### 5.5.2 Secondary Adjacent Property Concerns

In addition to primary environmental concerns described above the Bayonne Durable Recycling Center, the Global Terminal and Container Service, the Northeast Auto Marine Terminal, and Unimark Inc., are included as adjacent properties of potential secondary concern. These properties were identified through federal and state database searches (Table 5-3 and 5-4) and are briefly discussed below.

The Bayonne Durable construction site is listed as a registered New Jersey Solid Waste Facility. The Durable construction site is a class B recycling center located at the northwestern edge of Constable Hook and immediately across from MOTBY. The facility recycles wood, cinders, asphalt-based refuse, concrete, brick, and stone. Due to the presence of nearby wetlands that have developed since Durable began its operations, the facility will likely not renew its recycling facility permit after it expires in two years. Durable has proposed to redevelop the area for commercial and retail uses (Ref 802). No evidence of potential impact of this property on MOTBY was identified during the course of this study.

The Global Marine Terminal and Container Service includes about 91 acres of the central land portion of the Port Jersey Pier immediately north of MOTBY. The facility is used primarily for storage and distribution. Based on the research and adjacent property visits conducted as part of the EBS, there is no evidence of past or current impact of this property on MOTBY.

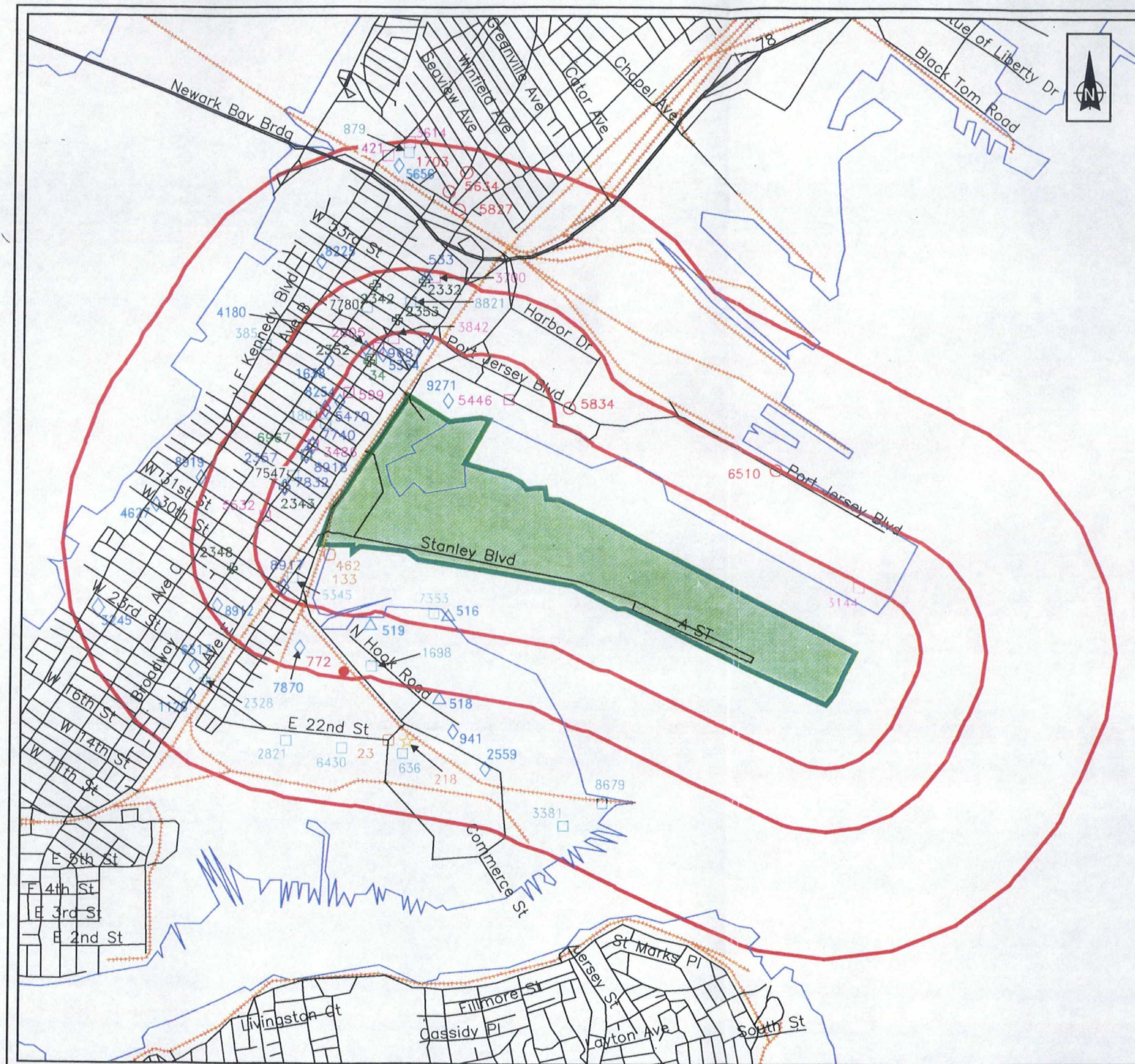
The Northeast Auto Terminal is located on the eastern edge of the Port Jersey Pier and encompasses approximately 103 acres and is a small quantity generator site for EPA hazardous waste codes D001, F003, and F005 which correspond to barium, and non-halogenated solvents. The Terminal has been in use since approximately 1987. There is no evidence that this property has had any effect on MOTBY.

Unimark Incorporated is a New Jersey UST site located on the southwestern portion of the Port Jersey Pier north of MOTBY and includes waterfront property. Two tanks are registered in the property, one containing waste oil and the other gasoline. Activities on site include storage and distribution. There is no evidence that activities and/or storage on this site have impact MOTBY.



Figure 5-1 ADJACENT PROPERTY OWNERSHIP AND LAND USE REFERENCE MAP





**KEY:**

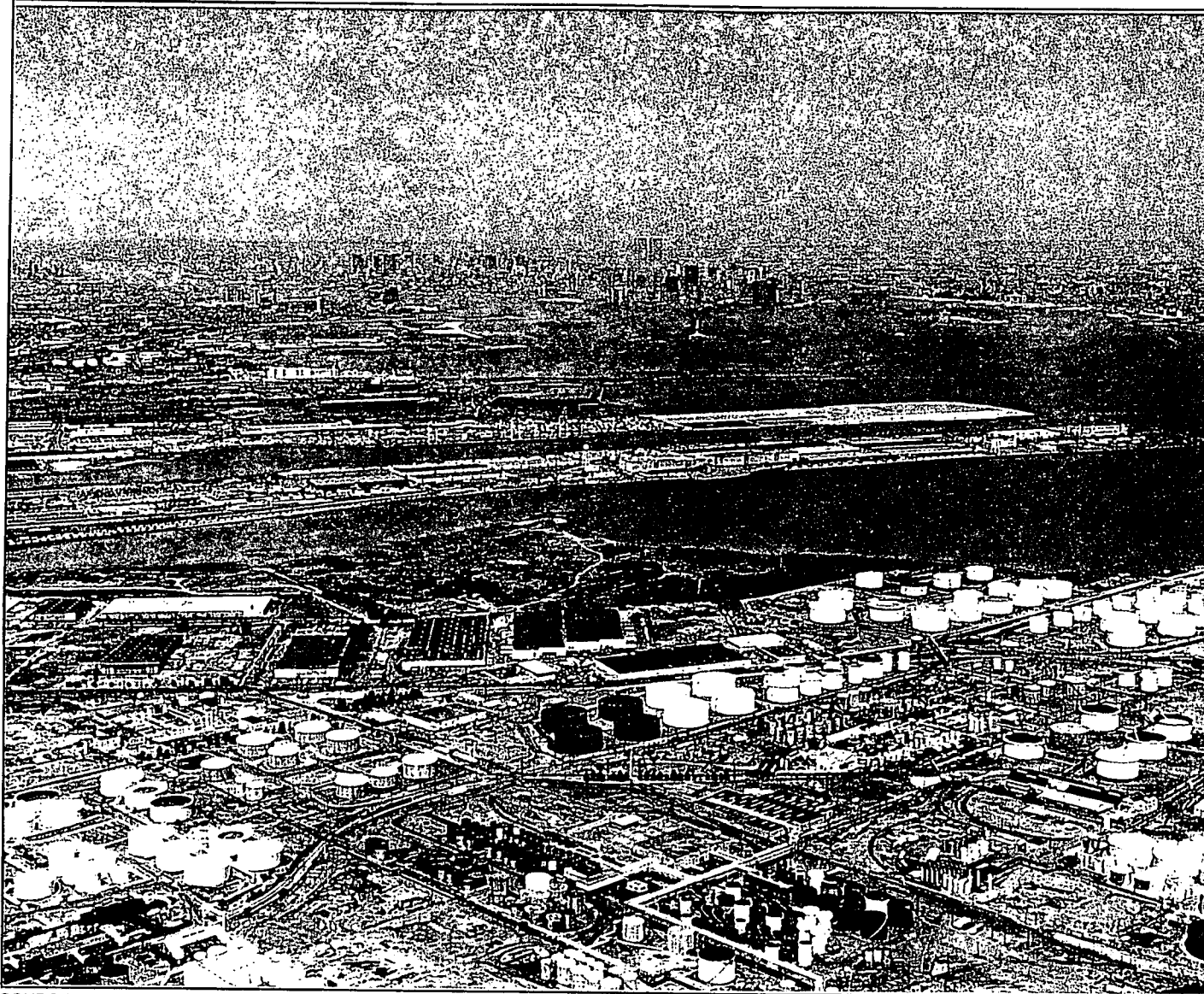
- Study Site
- ASTM Buffer
- Hydrography
- Railroads
- Roads
- Highways
- RCRIS\_TS
- CERCLIS
- RCRIS\_LG
- RCRIS\_SG
- ERNS
- HWS
- LRST
- SWF
- RST

SOURCE: REF. 302, adapted by Ecology and Environment, Inc. 1996.

**SCALE**  
0 0.5 1 Mile

**Figure 5-2 APPROXIMATE LOCATION OF ENVIRONMENTAL SITES WITHIN A ONE-MILE RADIUS FROM THE MILITARY OCEAN TERMINAL, BAYONNE (MOTBY) NEW JERSEY**





SOURCE: Ref. 715, adapted by Ecology and Environment, Inc., 1996.

**Aerial Photograph 5-1**    **CONSTABLE HOOK, MILITARY OCEAN TERMINAL, BAYONNE (MOTBY), AND PORT JERSEY, 1994**

Table 5-1						
ADJACENT PROPERTIES SURVEYED						
ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
<b>Properties on the Port Jersey Pier</b>						
1	399-10	Gould and E. 45th Street	P, A	Warehouse Storage	0.6	Current owner and user is Salles Machinery Corporation which has occupied this property for approximately 17 years. Former owner was Steven Gould Paper Company. Salles Machinery is a machinery dealership employing approximately 5 individuals. On property activities are limited to temporary storage of machinery. No maintenance or repair is performed on the property. A 5,000 gallon UST containing home heating oil is located immediately to the south of the building currently occupied by Salles Machinery and Elite Furniture. Only Elite Furniture used this UST.
2	399-9	Gould and E. 45th Street	V, A	Warehouse Storage	0.5	Current user is Elite Furniture who leases the property from the owner, Menachem Bar On. Visual inspection indicated that Elite Furniture shares the former Stephen Gould Paper Company building with Salles Machinery Corporation. Activities on the property are limited to storage and distribution of furniture off the property. No repair or manufacturing takes place on the property and transport is conducted via common carriers such as Yellow Trucking Co. Elite Furniture makes use of a 5,000 gallon UST located immediately south of the Salles Machinery portion of the building.
3	399-1, 399-2, 399-3, 399-4, 399-6, 399-7	Route 169 and Pulaski Street	V, A	Warehouse Storage	21	Current users are Port Jersey Distribution and Bayview Packaging. Current owner is Bayview Associates. Port Jersey Distribution uses the larger northern portion of the property for warehouse storage and self storage, "Mini Storage Depot." The smaller southern portion of the property borders the western end of the Port Jersey Channel and is used by Bayview packaging.

Key at end of table.

11:BK5040/RC1561-01/07/97-F1

Table 5-1 ADJACENT PROPERTIES SURVEYED						
ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
4	399-5	26 Pulaski Street	P, A	Repair/Storage	9.3	Current user is A & G Container Repair Company. Current owner is Port Jersey Corporation. Facility is a container repair service employing approximately 20 individuals. On-site activities include welding, sandblasting, and painting of shipping containers. Waste is minimal and is disposed off site. The property does not include waterfront property but has been included in this survey due to its proximity to the MOTBY property boundary.
5	400-1	150 Pulaski Street	V, A	Warehouse Storage/ Distribution	10.3	Current user is Unimark. Current owner is Port Jersey Corporation. Visual inspection indicated that activities on the property include storage and shipping. Southern portion of property borders the Port Jersey Channel. A drainage channel is located on the eastern edge of the property and likely drains the surrounding areas to the Port Jersey Channel.
6	400-2, 400-3	180 Pulaski Street	V, A	Warehouse Storage/ Distribution	15.4	Current user and owner is Workbench, Inc., which employs approximately 50 individuals. One AST (750 gallons), and signs suggesting a UST, were observed on the eastern edge of the property adjacent to the Workbench building. Visual inspection of the property suggested that it is used primarily for warehouse storage and distribution.
7	400-4, 400-5, 398-1, 398-4, 398-5, 398-6, 398-7, 398-8	302 Port Jersey Boulevard	V, A	Warehouse Storage/Distribution	91.2	Current user and owner is Global Terminal and Container Services Inc., which employs approximately 47 individuals. Visual observation indicated that the property is used primarily for storage and shipping.
8	398-2, 398-3, 398-9, 398-10 398-11, 398-12	Port Jersey Boulevard	V, A	Storage/Distribution	103	Current user on eastern end of Port Jersey Pier is Northeast Auto Marine Terminal which is an auto import/export distribution center. Cars are staged at this location and loaded into shipping vessels. Current owner is Port Authority.

Key at end of table.

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Table 5-1						
ADJACENT PROPERTIES SURVEYED						
ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
<b>Properties West of MOTBY</b>						
9	NA	Route 169 west of MOTBY	P, A	Public Highway	NA	Current user is New Jersey Department of Transportation. Route 169 is in the process of being widened from two to four lanes. Two park and ride facilities have been proposed along Route 169: one facility has been proposed at the foot of 34th Street, the other at the foot of 45th Street. Two petroleum pipeline right of ways are located on the eastern side of Route 169 and parallel to it. One pipeline belongs to Hess Oil and the other to International Maytex Tank Terminal (IMTT). A Public Service Electric & Gas (PSE&G) gas utility line also follows Route 169 to the west of MOTBY.
10	504 and 517-2, 517-3	West of MOTBY and Route 169; and west of MOTBY and east of Route 169 between 36th and Center Streets	V, A	Railroad	NA	Current user of the property west of Route 169 and owner is Conrail. Visual inspection from Route 169 indicated the presence of a single rail line. Monitoring wells were noted between Route 169 and Conrail railroad tracks immediately north of the 40th Street overpass. The owner of the narrow property east of 169 is also Conrail. Former Lehigh Valley Railroad tracks have been removed. The property currently contains pipeline easements for two 12-inch lines owned by IMTT, one 14-inch line owned by Hess, and a natural gas line.

Key at end of table.

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Table 5-1

## ADJACENT PROPERTIES SURVEYED

ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
11	407-1, 407-2, 407-3, 408-1, 408-2	Foot of Prospect Avenue	V, A	Manufacturing	4.0	Current users are Bayonne Nipple Corporation, the Hudson Pipe and Supply Corporation, and the Hudson Iron and Metal Corporation. Current owner is Hicor Associates. The Hudson Iron and Metal Corporation is located on the western side of Prospect Avenue near the intersection of the latter with Route 169. A 250-gallon AST without padding or containment was noted at the northeastern corner of the Hudson Pipe and Supply Building. The Bayonne Nipple Corporation is also located on the western side of Prospect Avenue, immediately south of Hudson Pipe and Supply. The Hudson Iron and Metal Corporation is located on the eastern side of Prospect Avenue at the intersection of Prospect and 32nd Street. Two gasoline pumps, suggesting presence of at least two underground storage tanks, were observed to the north of the Hudson Iron and Metal Building and on the eastern side of Prospect Avenue.
<b>Properties on Northern Portion of Constable Hook</b>						
12	412-1 412-2	Western end of North Hook Road	V, A	Light Industrial	16.0	Current owner and user is Durable Construction Corporation which operates a Class B recycling facility for wood, cinder blocks, asphalt-based refuse, concrete, brick and stone. Activities on the property include crushing of waste. The recycling facility's permit will run out in two years. According to the City of Bayonne, Durable Construction has proposed to develop this property as a Pathmark/Superstore facility to include retail stores, restaurants, and other conveniences.

Key at end of table.

11:BK5040/RC1561-01/07/97-F1

Table 5-1						
ADJACENT PROPERTIES SURVEYED						
ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
13	412-3	65 -69 North Hook Road	V, A	Warehouse Storage/ Distribution	6.4	Current user is Railhead Container Freight Service (CFS) who leases the property from current owner, North Hook Associates. Railhead CFS has used the property for approximately eight years. Activities on property include loading, storage, and shipping. No maintenance, repair, or refueling is conducted on the property. A drainage ditch was noted along the western edge of the property, however, the presence of a 20-foot berm (the southern edge of the former city landfill) on the northern side of the property, prevents drainage from the property north towards the waterfront and MOTBY.
14	415-1	65 North Hook Road	V, A	Warehouse Storage/ Distribution	2.5	Current user is Warehouse and Trucking who leases the property from Broadway Associates. Visual inspection of the property from North Hook Road suggests that the property is used as a warehouse for storage and shipping. A 20-foot berm (the southern edge of the former city landfill) on the northern side of the property likely prevents drainage from the property north towards the waterfront and MOTBY.
15	415-2	63-65 North Hook Road	V, A	Manufacturing	7.5	Current user is Garden State Converters which employs approximately 40 people and leases the property from Triangle Marketing Corporation. Visual observation from North Hook Road indicated the presence of an AST estimated to hold approximately 2,000 gallons (padded and with spill containment) adjacent to the southeastern corner of the Garden State Converters building.

Key at end of table.

11:BK5040/RC1561-01/07/97-F1

Table 5-1 ADJACENT PROPERTIES SURVEYED						
ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
16	412-4	North Hook Road and Avenue J	V, A	Municipal Landfill	69.2	Current owner and user is the City of Bayonne. Northern and larger waterfront portion is a vacant parcel of land, formerly a landfill. The landfill operated from the 1940s to 1983 when it was capped with 6 inches of clay. According to the City of Bayonne Environmental Specialist, the landfill was set in a sand bottom which likely resulted in the migration of contamination to the channel between Constable Hook and MOTBY. Since the landfill has been capped, monitoring wells have been installed and are sampled quarterly. The city's composting facility includes 4 of the 69.2 acres and is located in the southern portion of the property bordering North Hook Road from which the recycling facility's wind rows are visible. Topography suggests that drainage from the composting facility is towards the south towards North Hook Road.
17	412-5, 412-6, 419-2	End of North Hook Road	V, A	Utilities	403	Current owner and user is Public Service Electric and Gas (PSE&G). The majority of the property is covered by water and approximately 83 acres are upland. The property can be divided into a northern and southern portion. The smaller southern portion of the property located at the end of North Hook Road includes a generating station used only at peak times. Two large electrical transformers, one large AST, several small ASTs, and pipes were noted from North Hook Road. To the west of the generating facility a pile of refuse and a drainage ditch leading north towards the waterfront and MOTBY were noted. The remaining northern waterfront portion of the property is currently vacant. According to the City of Bayonne Environmental Specialist, the PSE&G property is known to be contaminated with heavy metals. The Mayor of Bayonne has reportedly proposed to develop this land into a golf course.
18	412-7	North of Constable Hook	V, A	Vacant	10	Current owner is the City of Bayonne. Visual inspection indicated that the property is located in the Channel between MOTBY and Constable Hook.

Key at end of table.

11:BK5040/RC1561-01/07/97-F1

Table 5-1						
ADJACENT PROPERTIES SURVEYED						
ID <sup>1</sup>	Tax Map # <sup>2</sup>	Location <sup>3</sup>	Type <sup>4</sup>	Use	Acres	Property Description/Comments
19	419-1, 419-2*	250 E. 22nd Street	P, A	Manufacturing	450**	Current owner and user is the International Maytex Tank Terminal (IMTT), although former user and owner, Exxon (formerly Standard Oil Corporation), remains responsible for the environmental cleanup at the site. IMTT uses the property for manufacturing, storage, and distribution of petrochemical products. Property includes 470 tanks with a total capacity of 12.5 million barrels (2 million cubic meters) and tank capacity ranges between 120 barrels and 250,000 barrels. Facility includes waterfront property with 4 tanker berths, 11 barge berths.

## Key:

- \* These block and parcel lot numbers refer to the portion of IMTT property north of New Hook Access as shown on Figure 5-1. IMTT owns additional property south of the blocks and parcels designated here.
  - \*\* The 450 acres indicated here refer to the entire IMTT property including property to the south of New Hook Access Road.
  - 1 Property identification number on Figure 5-1.
  - 2 Property tax map number as identified by City of Bayonne Tax Office Records. The first number refers to the block number, and the second to the parcel lot number. Adjacent properties owned by the same individual have been listed in one row.
  - 3 Address of parcel in question.
  - 4 Type of evaluation conducted: A = review of photographs, including aerials (Ref. 39, 234, 707, 709, 712, 715, 722, 724); V = visual inspection from public right of way or from adjacent properties at which right of entry was granted; and P = physical inspection of property with granted right of entry.
- AST = Aboveground storage tank.  
 MOTBY = Military Ocean Terminal, Bayonne  
 NA = Not applicable.  
 UST = Underground storage tank.

Source: Compiled by E & E from Ref. 301 for property boundaries, lot numbers, and acreage; Ref. 234 for land use; and Ref. 802 for 1996 E & E visual inspection, and E & E interviews with City of Bayonne representatives and adjacent property representatives.

**Table 5-2**  
**FEDERAL AND STATE SITE DATABASES CONSULTED**

Database	Description	Search Radius (miles) <sup>1</sup>	Date of Agency Update <sup>2</sup>
<b>Federal Databases</b>			
National Priorities List (NPL)	An EPA listing of uncontrolled or abandoned hazardous waste sites also known as the Superfund List. The list is based on a site's Hazardous Ranking System (HRS) score. These sites are targeted for possible long term remedial action under the Superfund Act.	1	07/01/95
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	A comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites. These sites have either been investigated or are currently under investigation by the EPA for the release or threatened release of hazardous substances. Once a site is placed on the list it may be subjected to several levels of review and evaluation before it is placed on the NPL.	¼	07/01/95
Toxic Release Inventory (TRI)	Information on the industrial release and/or transfer of toxic chemicals as reportable under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III).	½	12/31/92
Resource Conservation and Recovery Information System (RCRIS)	Information pertaining to facilities that either treat, store, and/or dispose of hazardous wastes. Facilities in this database have been divided into three subcategories for the purpose of this EBS.		
	<u>RCRIS-TS</u> : Information pertaining to the status of facilities tracked by the RCRA Administrative Action tracking system (RAAT 3/03/95).	1	05/01/95
	<u>RCRIS-LG</u> : Facilities that either generate more than 1,000 kilograms of hazardous waste per month or meet other applicable requirements of the Resource Conservation and Recovery Act (RCRA).	CP	05/01/95
	<u>RCRIS-SG</u> : Facilities that generate between 100 and 1000 kilograms of hazardous waste per month or meet other applicable RCRA requirements.	CP	05/01/95
Civil Enforcement Docket (DOCKET)	EPA system for tracking civil judicial cases filed on the agency's behalf by the United States Department of Justice. The DOCKET contains information on filed civil cases dating from 1972 to the present.	1	04/21/95

Key at end of table.

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Table 5-2

## FEDERAL AND STATE SITE DATABASES CONSULTED

Database	Description	Search Radius (miles) <sup>1</sup>	Date of Agency Update <sup>2</sup>
No Further Remedial Action Planned Site (NFRAP)	Information pertaining to sites which have been removed from the federal EPA's CERCLIS Database. NFRAP sites may be sites where following investigation, no contamination was found; contamination was removed quickly without need for the site to be placed on the NPL; or contamination was found not to be serious enough to require federal Superfund action or consideration.	½	02/28/95
Federal Reporting Data System (FRDS)	Summary information pertaining to all public water supply wells and their associated treatment facilities.	1	10/28/94
Emergency Response Notification System - 1994 (ERNS)	National database which includes information on sudden and/or accidental releases of hazardous substances and petroleum into the environment. The ERNS reporting system contains preliminary information on specific releases including the spill location, substance released, and responsible party.	½	07/14/94
Facility Index System (FINDS)	Inventory of all facilities that are regulated or tracked in approximately 20 EPA databases including the TRI, CERCLIS, and RCRIS. Facilities are assigned an identification number which serves as a cross reference for other databases in EPA's program system. Each FINDS record indicates the EPA Program Office that is responsible for tracking the facility.	½	10/28/94
Open Dumps Report (OPENDUMP)	The Resource Conservation and Recovery Act defines the term "open dump" to mean any facility or site where solid waste is disposed of, which is not a sanitary landfill meeting the criteria promulgated under section 4004, and/or which is not a facility for the disposal of hazardous waste. Thus, any facility which fails to comply with any one element of the criteria is considered to be an open dump.	1	01/01/90
Nuclear Power Facilities (NUCLEAR)	Comprehensive listing of all licensed and active nuclear power plants in the United States.	1	01/01/93

Key at end of table.

11:BK5040/RC1561-01/07/97-F1

**Table 5-2**  
**FEDERAL AND STATE SITE DATABASES CONSULTED**

Database	Description	Search Radius (miles) <sup>1</sup>	Date of Agency Update <sup>2</sup>
<b>New Jersey State Databases</b>			
New Jersey Known Contaminated Sites List (HWS)	Comprehensive report of approximately 6000 sites in the State of New Jersey where contamination of soil or groundwater has been confirmed and where cleanup efforts have either begun or are pending.	1	05/16/95
New Jersey Leaking Underground Storage Tank Report (LRST)	A comprehensive listing of all reported leaking underground storage tanks located within the State of New Jersey.	½	02/01/92
New Jersey Solid Waste Landfills Report (SWF)	Comprehensive listing of all active and inactive permitted waste disposal sites and processing facilities located within the State of New Jersey.	½	08/1895
New Jersey Underground Storage Tank Report (RST)	Listing of all registered underground storage tanks located within the State of New Jersey.	1	02/01/92

**Key:**

- Distance criteria are measured in miles from the land boundary of the MOTBY property and are based on American Society for Testing Materials (ASTM) standards.
- Date of last update of the specified database by the responsible agency.

CP = Contiguous property: under the ASTM Standards only the RCRIS-LG and RCRIS-SG sites with boundaries contiguous to the boundary of the site of interest are included.

EPA = United States Environmental Protection Agency.

Source: Compiled by E & E from Ref. 302.



**Table 5-3**  
**SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>**

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
Sites located within ¼ miles from the MOTBY property				
519	Bayonne Durable Recycling North Hook Road Bayonne	SWP	Facility ID 0901001160	Operating recycling center.
7740	Bayonne Foreign Auto Repair, Inc. 827 Broadway Bayonne	RST	UST 0256764	Facility includes five underground storage tanks. Contents were not reported.
9687	Bayonne Texaco, Inc. Ave. E & 50th Street Bayonne	RST	UST 0110611	Facility includes a total of five underground storage tanks: one tank holds leaded gasoline, one contains unleaded gasoline, one contains medium diesel fuel (No. 2-D), one tank holds waste oil, and one holds home heating oil (No. 2).
5345	Bayonne Nipple Co. E of E 32nd Street Bayonne	RCRIS-LG	NJD980776058	Large quantity generator site for hazardous waste code F002. No information on waste quantity provided.
7353	City Bayonne Hook Road Bayonne	RCRIS-LG	NJ982279010	Large quantity generator site for hazardous waste code X001. No information on waste quantity provided.
7832	Constanza Gulf 765 Broadway Bayonne	RST	UST 0088310	Facility includes a total of three underground storage tanks. No information on the contents were provided in the search.
5532	Dawn Marie Cleaners 717 Broadway Bayonne	RCRIS-SG	NJD986653236	Facility is a small quantity generator site for EPA hazardous waste codes D000 and F002. Waste amounts were not reported.
2005	Dolan Repairs, Inc. 977 Broadway Bayonne	RCRIS-SG	NJD981871965	Facility is a RCRA small quantity generator for EPA hazardous waste codes F005. Waste quantity was not reported.

Key at end of table.

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Table 5-3

SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
8254	Doolan's Auto Service 676 Avenue E	RST	UST ID 0093035	Facility with three tanks: tank 1 contains leaded gasoline, tank 2 contains medium diesel No. 2 Oil. No information on content of third tank provided. Certificate issued 3/1/92.
599	Eddies Speed, Inc. 909 Broadway Bayonne	RCRIS-SG	NJ040751927	Facility is a RCRA small quantity generator for EPA hazardous waste codes D000, D001, F003, and F005. Waste quantities were not reported.
3842	Exxon Store #3-2519 and Station 764 Avenue E Bayonne	RCRIS-SG	NJD986599645	Small quantity generator site for waste codes D000 and D018. Waste quantity not reported.
		RST	UST ID 0074829	Five tanks are located on property: Tank 1 contains unleaded gasoline, tank 2 contains light diesel No. 2 fuel, tank 3 contains waste oil. Contents of remaining two tanks were not reported.
		LRST	Case No. 9011011029	Leaking underground storage tank on the property.
6510	Global Terminal and Container Service 302 Port Jersey Blvd. Jersey City	HWS	NJD053538682	Facility is a New Jersey known hazardous waste site.
2343	Gulf S/S 34th & Broadway Blvd. Bayonne	LRST	Case Number 9002271601	Facility experienced an underground storage tank leak.
9818	Horace Mann School 38th & Broadway Bayonne	RST	UST 0272685	Facility includes one underground storage tank containing No. 4 heating oil.
8917	Lincoln No. 5 School 30th & Prospect Bayonne	RST	UST 0272676	Facility includes one underground storage tank containing No. 2 home heating oil.

Key at end of table.

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**Table 5-3**  
**SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>**

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
6967	Lyceum Cleaners 814 Broadway Bayonne	RCRIS-LG	NJD982179087	Facility is a Resource Conservation and Recovery Act (RCRA) large quantity generator for EPA hazardous waste numbers D000 and F002. Waste amount was not reported.
3144	North East Auto Marine Terminal Inc. 403 Port Jersey Blvd. Jersey City	RCRIS-SG	NJD986573277	Small quantity generator site for hazardous waste codes D001, F003, and F005. Waste quantity not reported.
2357	One Hour Kleanizing 814 Broadway Bayonne	RST	0026480	Facility includes one underground storage tank containing No. 2 home heating oil.
3486	Ottos Gulf, Inc. 827 Broadway Bayonne	RCRIS-SG	NJD986585198	Facility is a RCRA small quantity generator for EPA hazardous waste codes D001 and X001. Waste quantities were not reported.
1801	Shell Service Station 640 - 650 Avenue E & 40th Street Bayonne	RCRIS-LG  RST	NJD986593069  UST ID 0047027	Large quantity RCRA generator site for hazardous waste codes D001, D008, D018, X001, and X002. Waste quantities unknown.  Four tanks exist on property: tank 1 contains leaded gasoline, tank 2 contains unleaded gasoline, tank 3 contains waste oil. No information on the contents of the fourth tank provided. Certificate issued 2/1/92.
5446	Sovereign Chemical Corporation 30 Pulaski Street Bayonne	RCRIS-SG	NJD986650646	Facility is a RCRA small quantity generator for EPA hazardous waste codes D001. Waste quantities were not reported.
34	T & J Amoco Service Station 960 Broadway Bayonne	RCRIS-LG	NJD986622561	Facility is a RCRA large quantity generator for EPA hazardous waste numbers D001, D008, and X003. Waste amounts were not reported.

Key at end of table.

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Table 5-3				
SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH <sup>1</sup>				
Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
2352	T & J Auto Laundry Broadway & 46th Street Bayonne	LRST	Case Number 8911091516	A leaking underground storage tank was identified on the property.
8821	Texaco Service Station 800 Avenue E & 50th Street Bayonne	RCRIS-LG	NJD986580785	Large quantity generator facility for hazardous waste codes D000 and D001. Waste quantity unknown.
9271	Unimark Incorporated 150 Pulaski Street Bayonne	RST	UST ID 0180669	Facility includes two tanks: one containing unleaded gasoline and another containing waste oil. Certificate issued on 7/1/91.
Sites located between ¼ and 1 mile from the MOTBY property				
3381	Amerada Hess Corporation Lower Hook Road Bayonne	RCRIS-LG	NJD064280936	Large quantity generator site for unknown quantity of hazardous waste code D001.
8225	Amoco Service Station 2019 1121 Kennedy Boulevard Bayonne	RST	UST ID 023234	Facility includes three tanks, one of which contains unleaded gasoline. No information on the contents of the other two tanks was provided.
941	Bayonne Marketing Terminal 40 Lower Hook Road Bayonne	RST	UST ID 0010450	Facility includes one tank (certificate issued 2/1/92).
516	Bayonne Sanitary Landfill North Hook Road Bayonne	SWF	Facility ID 0901000398	Currently closed Sanitary Landfill for municipal dry sewage, bulky waste, vegetative waste, animal and food processing waste.
2328	Bayonne Plumbing Supply 250 Avenue E Bayonne	LRST	Case No. 8912111505	Leaking underground storage tank on the property.

Key at end of table.

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**Table 5-3**  
**SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>**

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
2821	Bayonne Terminal Warehouse Corporation E 22nd Street Bayonne	RCRIS-LG	NJD048809487	Large quantity RCRA generator facility for EPA waste codes D001, U002, and U154. Waste quantity not reported.
518	Bayonne City Compost North Hook Road Bayonne	SWF	Facility ID 0901001097	Facility is an operating composting site for vegetative waste.
1128	Bayonne Mobil 224 Avenue E & 21 Street Bayonne	RST	UST ID 0125930	Facility includes three tanks. One contains unleaded gasoline and another leaded gasoline. No information on contents of the third were available (certificate issued 4/1/91).
7870	Bayonne Block Corporation Hook Road & Avenue H Bayonne	RST	UST ID 0088734	Facility tank includes three tanks: tank 1 containing leaded gasoline, tank 2 containing unleaded gasoline, and tank 3 containing No. 2D diesel fuel. Certificate issued 3/1/92.
4180	Beacon Oil Corporation 746 E Bayonne	RST	UST ID 0046703	Two tanks exist on property: Tank 1 contains unleaded gasoline, and tank 2 waste oil. Certificate issued on 3/1/92.
2332	Berger Avenue Bus Company 1080 Broadway Bayonne	LRST	Case Number 9006220943	A leaking underground storage tank was identified on the property.
2559	Centralized Garage New Hook Road Bayonne	RST	UST ID 0141220	Three tanks located on property. Tank contents were not reported. Certificate issued 4/1/91.
772	Conrail - Central Jersey Industries Old Hook Road Bayonne	CERCLIS	NJD980770010	Site discovered on 4/10/84. Property underwent investigation under CERCLA. A preliminary assessment was completed on 6/1/85 and ranked the site as high priority. A site investigation was completed on 8/30/88 and also ranked the site as high priority.

Key at end of table.

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Table 5-3

SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
5827	Curries Woods Apartments 61 Meritt Street Jersey City	HWS	NJL840001325	Facility is a known New Jersey hazardous waste site.
3700	Custom Care Cleaners 2 Garfield Avenue	RCRIS-SG	NJD986596997	Small quantity generator site for EPA hazardous waste code F002. Waste quantity not reported.
1698	Domenico Tours and Bus Service 71-75 New Hook Access Road Bayonne	RCRIS-LG  RST	NJD003775558  UST ID 0006275	Facility is a large quantity RCRA generator for EPA waste codes D001, F001, and F004. Waste quantity not reported.  A total of 13 tanks exist on the property: tank 1 contains unleaded gasoline, tank 2 contains medium diesel fuel No. 2, tank 3 contains waste oil, tank 4 holds home heating oil No. 2. No information on the remaining nine tanks was provided. Certificate issued on 2/1/91.
8919	Dr. WF Robinson No 3 School 32nd Street and Kennedy Boulevard	RST	UST ID 0272694	One tank containing No. 2 heating oil exists on property. Certificate issued 1/1/91.
6430	E.W. Saybol E 22nd Street Bayonne	RCRIS-LG	NJD981481922	Large quantity generator site for hazardous waste codes D001, F001, F004. Waste quantity not reported.
879	Eastern of New Jersey Inc. 1510 Kennedy Boulevard Jersey City	RCRIS-LG	NJD001715838	Large quantity RCRA generator site. Waste quantity and waste codes unknown.
8679	Eklof Marine Corp. Inc. Exxon Constable Hook Berth #5 Bayonne	RCRIS-LG	NJD986578375	Large quantity RCRA generator site for waste code X003. Waste quantity not reported.

Key at end of table.

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**Table 5-3**  
**SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>**

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
29*	El Dorado Terminals Corp Plant Constable Hook Road Bayonne	RCRIS-LG	NJD000632307	Large quantity RCRA generator site for EPA hazardous waste codes D002, U080, and U107.
636	Exxon CO USA-Metropolitan Distribution Center Foot of E 22nd St. Bayonne	RCRIS-LG	NJD000818666	Large quantity generator site for EPA hazardous waste codes D000 and D001. Waste quantity not reported.
	Exxon Co USA- Bayonne Domestic Sales	RCRIS-LG	NJD00818658	Large generator site for hazardous waste codes D001 and D000. Waste quantity was not reported.
	Exxon Company USA Bayonne Plant	RST	UST ID 0025526	Facility includes two tanks: Tank 1 contains unleaded gasoline, and tank 2 contains hazardous substances.
2342	Gas S/S (Leon's Foreign Car Repair) 1064 Avenue C Bayonne	LRST	Case Number 9109251150	A leaking underground storage tank was identified on the property.
4627	Getty F. Krol 753 Kennedy Boulevard Bayonne	RST	UST ID 0163901	Facility includes two tanks, one of which contains heating oil No. 2. Contents of second tank were not reported.
5634	1 Heckman Street 1 Heckman Drive Jersey City	HWS	NJL800012619	Facility is a known New Jersey hazardous waste site.

Key at end of table.

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Table 5-3

SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
23	ICI Americas Inc. East 22nd St and Avenue J Bayonne	RCRIS-TS	NJD001787944	Facility is a RCRA treatment, storage, and disposal site for EPA hazardous waste codes D000, D001, D002, F002, F003, F004, F005, P022, U002, U031, U044, U112, U134, U147, U154, U159, U160, U188, U196, U197, U211, U220, U223, U226, U228, U238, and U239. Waste quantities were reported for the following: D001 as 122.5 metric tons, D002 as 107.9 metric tons, F002 as 68.9 metric tons, F003 as 8.16 metric tons, U002 as 724.4 pounds, U031 as 369.7 pounds, U154 as 729 pounds, U160 as 449.6 pounds, U220 as 794.3 pounds, and F005 as 55.4 metric tons.
218	IMTT Ft of E 22nd Street Bayonne	ERNS	Report #229123	Two gallons of No. 2-D oil spilled when tug Mohagan burped vent tube, resulting in a release. Booms and sorbent deployed. Sheen size was 1 x 2 yards. Area affected was primarily the Kill Van Kull. Response undertaken by the National Response Center.
		RST	UST ID 0058223	Site includes a total of 5 tanks. One tank contains leaded gasoline, another tank contains unleaded gasoline. No information on the contents of the other three tanks was provided.
421	King Lincoln Mercury 1590 Kennedy Boulevard Bayonne	RCRIS-SG	NJD011355120	Small quantity generator site for hazardous waste site D000, D001, F003, and F005. Waste quantity not reported.
5470	Louis Auto Repairs 13 W 41 Street Bayonne	RST	UST 0061788	Facility includes one underground storage tank containing leaded gasoline.
7780	Nice Day Cleaners 1049 Avenue C Bayonne	RCRIS-LG	NJD982739872	Large quantity RCRA generator facility for hazardous waste codes F002. Waste quantity not reported.

Key at end of table.

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**Table 5-3**  
**SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>**

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
1703	NJ Transit Greenville Garage 53 Old Berger Road Jersey City	HWS	NJD980777528	Facility is a known New Jersey hazardous waste site.
2348	NJ Bell 630 Broadway Bayonne	LRST	Case Number 8602260000	A leaking underground storage tank was identified on the facility.
5656	Peter Brennan 1568 Kennedy and Seaview Jersey City	RST	UST ID 0063902	Four tanks exist on property: one tank contains unleaded gasoline and another contains waste oil. Contents of the other two tanks were not reported. Certificate issued 3/1/92.
8912	PG Vroom No2 School 26th Street & Broadway Bayonne	RST	UST ID 0272621	One tank containing heating oil #2 on property. Certificate issued 1/1/92.
5834	Port Jersey Industrial Center Port Jersey Boulevard & Industrial Drive Jersey City	HWS	NJL840001960	Facility is a known New Jersey hazardous waste site.
3614	Republic Container Corp. 1561 Kennedy Boulevard Jersey City	RCRIS-SG	NJD986589992	Small quantity RCRA generator site for hazardous waste codes U019, U037, and U044. Waste quantity unknown.
		RST	UST ID 0060329	Four tanks on property: tank 1 contains medium diesel fuel No. 2D, tank 2 contains heating oil No. 4, tank 3 contains heavy heating oil No. 6. No information on the contents of tank 4 was reported. Certificate issued 3/1/92.
3857*	Rona Pearl Division EM Industries	RCRIS-LG	NJD080619067	Large quantity RCRA generator for hazardous waste codes U077 (23.8 metric tons) and U154 (179.6 metric tons).
8908*	Roosevelt No 11. School 23rd Street Bayonne	RST	UST ID 0272586	Facility includes one tank. No information on the contents of the tank was provided. Certificate issued on 2/1/92.

Key at end of table.

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Table 5-3

SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
3068*	Sisas Inc. E 22nd Street Bayonne	RCRIS-LG	NJD982795932	Large quantity generator site for EPA hazardous waste code U069. Waste quantity not reported.
3297*	Southern California Chemical Corporation E 22nd Street Bayonne	RCRIS-LG	NJD062041108	Large quantity RCRA generator waste codes D002 (12,000 metric tons) and U219 (550 metric tons).
7547	Stratford Industries 795 Avenue E Bayonne	RCRIS-LG	NJD9825358990	Large quantity RCRA generator site for hazardous waste codes D001 and X003. Waste quantities unknown.
385	T/A Parkview Service Station 44th Street & Boulevard Bayonne	RCRIS-LG	NJD000700476	Facility is a large quantity RCRA generator for EPA hazardous waste codes D000 and D001. Waste quantities not reported.
1638	T & J Auto Laundry Inc. 960 Broadway Bayonne	RST	UST ID 0018461	Three tanks; one contains unleaded gasoline. Contents of remaining two tanks not reported. Certificate issued 2/1/92.
533	Twin Auto Wreckers Landfill 1097 Broadway Bayonne	SWF	Facility ID 0906000412	Former municipal vegetative solid waste landfill.
2353	Unknown 50th & Broadway Bayonne	LRST	Case Number 8911091516	A leaking underground storage tank was identified on the property.
589	Value City Furniture E 52nd Street Bayonne	RCRIS-LG	NJD986650406	Large quantity RCRA generator site for hazardous waste codes D000 and D007. Waste quantity not reported.

Key at end of table.

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**Table 5-3**  
**SUMMARY OF FEDERAL AND STATE SITE DATABASE RECORD SEARCH<sup>1</sup>**

Map ID	Name/Location	Database <sup>2</sup>	EPA, NJSDEC, UST, or Case No.	Comments <sup>3</sup>
5354	Van Leer Containers 736 Avenue E Bayonne	RST	UST ID 0060536	Facility includes two tanks. Contents not reported. Certificate issued 3/1/92.
3245	Yellow Cab & C&D Inc. 565 Kennedy Boulevard Bayonne	RST	UST ID 0036434	One tank containing unleaded gasoline on facility.
6317	YMCA of Bayonne 259 Avenue E Bayonne	RST	UST ID 0214256	One tank containing heating oil No. 2 (certificate issued 1/1/92).

Key:

Note: Shaded rows indicate hits that coincide with current adjacent properties as identified in Table 5-1.

\* Exact location could not be identified and does not appear on Figure 5-2.

- Database results may include names of companies that are on longer users or owners of the site. Figure 5-2 identifies the approximate locations of the sites identified through the ERIIS database search (Ref. 302). In cases where a site was listed under more than one database, only the record of greatest concern (listed first in this table) is identified on Figure 5-2.
- A description of the database is included as Table 5-2. Facility Index Sytem (FINDS) database search results were not included in this table due to the limited information that they contain; and the fact that this information is duplicated by some of the other databases. However, for reference, the FINDS search results have been included in Appendix I.
- A key to the EPA hazardous waste codes is included in Appendix I.

Source: Compiled by E & E from Ref. 302.

Table 5-4

ADJACENT PROPERTY SPILL DATABASE RESULTS<sup>1</sup>

Case Number	Site	Street	Date	Substance	Amount	Receiving Water	Status at Scene
<b>Properties on Port Jersey Pier</b>							
88-06-22-1111	Global Terminal	Port Jersey Blvd.	6/22/88	Unknown liquid	Unknown	Unknown	
89-04-24-1203	Port Jersey distribution	Rt 169 and Pulaski St.	4/24/89	Oil like substance	Unknown	Unknown	
89-10-25-1023	Foot of Pulaski St.	Foot of Pulaski St.	10/19/89	Drums, abandoned	Unknown		
91-3-18-1108-08	Global Terminal		3/18/91	Oil diesel	5-liters	New York Harbor	USCG is responding no absorbent placed at this time.
91-5-24-2011-21	New York Bay	Pulaski St.	5/24/91	Drums, abandoned, non-leaking	None	New York Bay	Caller stated approximately thirteen 55-gallon drums had washed up on shore. Drums are marked phosphorus oxychloride (not leaking). Incident may be ongoing.
91-12-18-1054-09	Vacant lot	19 Pulaski Lane East	12/16/91	Soil contaminated	Unknown		Test results reveal soil contamination from unknown source.
92-10-15-1852-00	Global Terminal	Pulaski St.	10/15/92	Nitromethane	Unknown	None	Spill took place during sea voyage to reported location; fire dept on scene organizing command post. Impact to vessel only.
92-11-28-0937-05	Global Terminal		11/28/92	Oil diesel	2 gallon	Upper bay	
92-12-7-0904-00	Global Terminal		12/7/92	Lead nitrate	None	None	Vessel due to arrive at location carrying above materials. USCG reports no spillage at this time.

Table 5-4

ADJACENT PROPERTY SPILL DATABASE RESULTS<sup>1</sup>

Case Number	Site	Street	Date	Substance	Amount	Receiving Water	Status at Scene
93-5-10-1337-43	On roadway	Pulaski & Route 169	5/10/93	Diesel fuel	80 gals	None	Spill due to broken line on a truck. Material is contained and cleaned up.
93-5-10-0431-04	On road way	20 Pulaski/Route 169	5/10/93	Diesel fuel	75 gals	None	Spill due to broken gas line on a truck. Cleanup being done.
93-8-24-0949-51	Global Terminal	Pulaski St. & Route 169	8/23/93	Oil hydraulic	Unknown	New York harbor upper bay	Spill occurred at facility, material did enter a storm drain.
94-3-7-1052-35	North East Auto Terminal	403 Port Jersey Blvd.	3/7/94	Oil hydraulic	4 gals	Upper New York Bay	Pin hole in hydraulic hose caused spill. Cleanup being done.
95-3-7-1649-00	Global Terminal	Pulaski St.	3/7/95	None	None	None	Vessels Genoa Senator & Foust collided in the Kill Van Kull. No spillage but potential exists, due to 10 meter gash on Genoa Senator and panel damage on Foust.
95-6-21-0930-31	Global Terminal	22nd St.	6/21/95	Oil sheen	Unknown	Upper New York Bay	Oil sheen coming from construction equipment. Vandals pushed into waterway in past. C.G. investigating. No other action being taken.
95-10-10-1603-14	Global Terminal		10/11/95	None	None	New York Bay	A vessel named Wealthy Rivers will be docked at the global terminal 10/11/95 at 1000 hrs. It is carrying a container filled with sulfur dioxide.

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**Table 5-4**  
**ADJACENT PROPERTY SPILL DATABASE RESULTS<sup>1</sup>**

Case Number	Site	Street	Date	Substance	Amount	Receiving Water	Status at Scene
95-10-11-1420-02	Global Terminal	302 Jersey Blvd.	10/11/95	None	35,000 lbs.		Vessel named Wealty Rivers has possible air release of thio-urea from container in hull of ship. Ber 1 on scene. Hudson regulator on scene.
<b>Properties West of MOTBY</b>							
91-5-20-1825-33	Drain-Route 169 South at 32nd St.	Going into New York Bay	5/20/91	Sewage raw	Unknown	Hudson river	Raw sewage coming out of drain pipe. Unknown origin.
93-6-11-1506-12	Hicor Associates	Foot of E 33rd St.	6/11/93	Soil contaminated with hydrocarbons	Unknown		1-3,000, 1-550, 1-1,000, 1-4,000 fuel oil and 1-1,000 diesel tanks removed, soil backfilled, samples show levels above 1,000 ppm around 4 of the tanks.
93-10-15-1635-31	Hicor Associates	Foot of E 33rd St.	10/14/93	Diesel fuel	Unknown	None	Removal of 1/3-k gallon UST. Tms c-931388 1389 1390 1391 1392; UST #6 unknown non registered tank.
95-12-4-1456-21	Bayonne Nipple Corporation	Foot E 32nd St.	12/4/95	Oil-like substance	Unknown		Soil borings show contamination to groundwater with oil-like substance. Property is an ISRA site. ISRA case# 95154.
<b>Properties on Northern Portion of Constable Hook</b>							
89-08-16-1356	Railhead Trucking	10 Hook Rd.	8/16/89	Unknown liquid	Unknown	None	

Table 5-4

ADJACENT PROPERTY SPILL DATABASE RESULTS<sup>1</sup>

Case Number	Site	Street	Date	Substance	Amount	Receiving Water	Status at Scene
92-8-25-1021-00	Railhead Services Inc.	69 North Hook Rd.	7/30/92	Phosphorus pentachloride, solid	Unknown		Workers unloading shipping container upon opening container discovered vapor then closed container.
92-11-24-1422-01	Immediately south of MOTBY	North Hook Rd.	11/22/92	Dirt	Unknown	Kill Van Kull	Caller observed trucks dumping dirt which is encroaching onto wetland and water area.
93-3-26-1115-39	PSE&G-Bayonne General Station	Old Hook Rd.	3/26/93	Kerosene	Unknown		Tank removal UST#0199191. A 55-gal drum was found being used as a UST. Cleanup in progress.
95-4-20-1123-46	Penske Truck Leasing	69 N. Hook Rd.	4/20/95	Diesel fuel	1 gallon		Leak from fuel filter caused spill. Contractor doing cleanup.
95-10-30-1357-04	Recycling center	Hook Rd.	10/30/95	Dirt	Unknown		Dumping of fill dirt at compost pile.
96-2-7-0852-30	Garden State Converters	63 North Hook Rd.	2/7/96	Oil heating	Unknown		Company found contamination of soil during samples at test wells. Company will be doing cleanup.

<sup>1</sup> The State SPILL Database was searched for records of spill releases associated with the adjacent properties listed in Table 5-1, except spills at IMTT, which are presented in Table I-1 in Appendix I. This table may have omitted spills for which no address or site was listed.

## **6.1 Facility Inventory and Assessment**

Facilities at MOTBY were inventoried and assessed to identify specific environmental concerns. The methodology for the preparation of the inventories is presented in Section 2 of this report. The inventory information for MOTBY is discussed in Section 4 and presented in Appendices B through H, as well as identified on figures in the Appendices. Information on adjacent properties is presented in Section 5, with additional information presented in Appendix I.

Assessment of the inventory information was conducted in order to assign preliminary environmental property categorizations (see discussion below) to the various study areas at MOTBY. Preliminary categorizations are subject to the limitations outlined in Section 2 concerning the EBS methodology and the specific assumptions noted in the following section.

## **6.2 Property Categorization**

### **6.2.1 Regulatory Requirements**

In October 1992, Public Law 102-426, CERFA amended Section 120(h) of CERCLA. CERFA established new requirements with respect to contamination assessment, cleanup, and regulatory agency notification/concurrence for federal facility closure and property transfer. CERFA requires the federal government, before termination of federal activities, to determine the environmental condition of real property being considered for transfer. Once the condition has been determined, property transfer can proceed on properties if they have no residual environmental concerns that are either uncharacterized or require remedial or removal activities. Property with no history of storage, release, or disposal of hazardous substances or petroleum products, or migration of contamination from adjacent areas can be identified as "CERFA Uncontaminated Property", and is not subject to the



notifications contained in CERFA. Properties where storage, release, or disposal of hazardous substances or petroleum products has occurred (see further delineation below), but where all required remedial actions have been conducted, can also be transferred but are subject to the notification provisions contained in CERFA.

The primary CERFA objective is for federal agencies to expeditiously identify individual parcels of real property offering the greatest opportunity for immediate reuse and development. Although CERFA does not mandate the Army transfer real property so identified, it is the first step in satisfying the objective of identification of real property where no hazardous substances or petroleum products were stored, released, or disposed of. This property can be sold or transferred with no additional action. In addition, the CERFA categorization process can assist federal agencies in identifying the further investigation and remedial work necessary to allow the potential transfer of real property where environmental concerns have been identified.

CERFA categorizes real property in regards to the environmental conditions relevant to a particular parcel of land. Categories are determined by the presence or absence of storage, release, or disposal of hazardous substances or petroleum products, and the potential for migration of contamination from adjacent areas. Further delineations are made concerning the level of information, the concentrations of released substances, the amount and duration of storage of hazardous substances or petroleum products, and the status of remedial or removal activities. Table 6-1 presents the CERFA categorization scheme used for this EBS.

DoD guidance regarding CERFA categorization for the BRAC process has previously included petroleum products as an item of concern equivalent to other CERCLA defined hazardous substances. In the fall of 1995, DoD made modifications to the CERFA categorization guidance for use in the preparation of BRAC EBSs. These modifications remove petroleum products from consideration as a hazardous material for the purposes of assigning CERFA categories. However, these modifications have not been used for the assessment of study areas at MOTBY because the State of New Jersey considers petroleum a hazardous substance, and thus elimination of petroleum products from the categorization scheme would be inappropriate for characterization of property that will be subject to New Jersey cleanup requirements and be transferred subject to New Jersey property transfer requirements.

### **6.2.2 Categorization Methodology**

Several factors concerning MOTBY make a site-specific categorization of real property problematic due to a potential for underlying facility-wide contamination from several sources. MOTBY is located in New York Harbor, an area known to suffer extensive

pollution and the facility has been built on a man-made peninsula, developed out of hydraulic fill from potentially contaminated sediment from the harbor. MOTBY also possesses an extensive sewer and drain system that is a potential pathway for migration of contaminants from intentional and unintentional discharges during 57 years of operation. These items raise three areas of specific environmental concern:

1. **HYDRAULIC FILL:** Dredged material from New York Harbor was used to develop the peninsula and it is unknown what contamination can be associated with the fill material, or where at MOTBY contamination hotspots may be found.
2. **DISCHARGES TO THE SEWER SYSTEMS:** Documented discharges to the sanitary system occurred at several photo laboratories prior to the mid-1980s and there are a number of other potential discharge concerns including vehicle maintenance areas and oil/water separators.
3. **GENERALIZED POLLUTION OF NEW YORK HARBOR:** New York Harbor water and sediments have been impacted by historical and ongoing industrial activity. The impact of contaminant migration from New York Harbor on the MOTBY peninsula has not been characterized.

These three facility-wide concerns are currently unevaluated and thus make all MOTBY parcels a category 7 pending their resolution. It is recommended that these concerns be the first priority for future investigations. Figure 6-1 shows the official categorization of all parcels at MOTBY.

In order to provide site-specific information of the environmental condition of parcels at MOTBY independent of the facility-wide concerns, a secondary category has been assigned to each study area. As noted in Section 2, despite an effort to collect as much information as possible about potential environmental concerns at MOTBY, it is inevitable that some information about concerns identified in the EBS is lacking. Thus, for categorization purposes, conservative assumptions, i.e., assuming items to be an environmental concern unless clearly indicated otherwise, have been made. The following assumptions were used in the secondary categorization effort:

- **CATEGORIZATION IS BY STUDY AREA:** Categorization for this EBS was assigned on a study area basis, unless a clear delineation between sub-areas within a study area appears warranted (for example a contained spill of material that does not migrate easily in one section of a large study area may be defined as a distinct sub-area).

- **INTERIM CATEGORIZATION FOR FACILITIES AND ENVIRONMENTAL CONCERN ITEMS:** Individual environmental concerns and specific facilities were assigned an interim categorization to allow for an overall evaluation of a study area. These interim categorizations only consider the specific facility use or environmental concern and not other collocated or nearby concerns or activities, or migration from adjacent areas.
- **CATEGORIZATION DEFAULTS:** Study area categorizations default to the more restrictive (i.e., higher) category. For example, if there are several items in a study area, ranging in interim categorization from 1 through 6, the study area would be classified as a 6 to be conservative. The only exception to the above is when there is an item classified as 5 included in the study area (Category 5 assumes that some investigation or remedial work has been conducted previously or is ongoing, and if this is true for any part of an area, it is deemed true for the whole area).
- **STORAGE ASSUMPTIONS:** Unknown storage quantities are assumed to be greater than reportable quantities (or 600 gallons for petroleum products). Unknown storage durations are assumed to be greater than 1 year. Tank petroleum product storage is assumed to occur for a duration more than 1 year.
- **RELEASE ASSUMPTIONS:** Confirmed spills that have been cleaned up, but for which no confirmatory sampling data could be found, are classified as Category 5. Unknown release quantities of hazardous substances are assumed to be over reportable quantities. There is no threshold of concern for identification of petroleum releases, in accordance with New Jersey reporting guidance.
- **REMEDIATION ASSUMPTIONS:** Media removal and/or site investigation equates to remediation underway. Source removal (i.e., drums, tanks) does not equate to remediation underway.
- **MEDICAL WASTE ASSUMPTIONS:** Quantities of medical/infectious wastes at base dispensaries are assumed to be of reportable quantities. Thus all medical waste storage areas are assumed to be a minimum of Category 2.
- **RADIOACTIVE MATERIALS ASSUMPTIONS:** Quantities of radioactive material storage are assumed to be of reportable quantities and thus storage areas are assigned a minimum of Category 2.

Finally, the assumptions made in the EBS are based on current conditions and knowledge. The categorization maps should be considered living documents that can be updated as new information is made available, investigations are conducted, and remedial actions performed.

### 6.2.3 Categorization Results

The categorization effort indicates a range of site-specific environmental conditions at MOTBY. The results do not indicate a clear pattern applicable to large areas of the facility, although in general the results do reflect the heavier use of the central and eastern portions of the facility for activities with associated environmental concerns. However, several areas on the western portion of the facility also have significant (category 5 and 6) identified environmental concerns. Figure 6-2 presents a map of MOTBY which indicates the secondary categories assigned to each Study Area. Figure 6-3 presents a map of MOTBY delineating those parcels with a secondary category of 1 to 4 from those in category 5 to 7. Table 6-2 provides a list of areas with specific secondary category property.

Table 6-3 provides a summary of each study area which lists the present facilities, the size of the study area in acres, the secondary categorization for the study area, and the rationalization for the assigned category. Table A-1 in Appendix A presents a more detailed summary of the inventory information by Study Area. This table indicates all the facilities and types of items found in each study area, presents a brief overview of site land use, summarizes each inventory item, and presents the interim category assigned to each specific facility and its associated environmental concerns.

In the EBS, study areas have not been altered since their initial designation in order to maintain continuity of information and geographic referencing of environmental concern items. As further investigation results are available, the parcel map will need to be revisited for possible reparcelization and/or recategorization.

## 6.3 Data Gaps

EBS guidance advocates that all available federal, state, and local records be reviewed during the preparation of an EBS. While an effort has been made to review all relevant records relating to the base, the following files have not been reviewed to date because they either are not available or were not received in time for inclusion in the EBS:

- Records from the former DRMO operation at MOTBY that are not in the possession of the Base Department of Engineering and Housing that might be in the possession of the Defense Logistics Agency (DLA).
- Files from the North Jersey Field Office of the NJDEP that have not been copied to the Central Files held by NJDEP in Trenton.
- Manifest files for specific command activities and operations at MOTBY.

Site-specific data gaps have been identified in the inventories presented in Appendix C through H. In addition, several base-wide data gaps have been identified to date. These include the following:

- Removal and remedial reports for many of the previous remediation projects;
- Characterization of the hydraulic fill used to construct the port terminal in the 1930s and the potential for air deposition of contaminants from off-site sources;
- Specific sources of all material used to fill the MOTBY peninsula over the last 57 years;
- Characterization of the sewer pathways concerning past discharge and disposal practices;
- Characterization of sediments in all tidal lands owned by MOTBY;
- Base-wide facility survey of all buildings and areas, inside and outside, regardless of whether an environmental concern has been previously identified;
- Base-wide assessments for radon and lead-based paint;
- Updated information concerning the exact status of asbestos removal by facility; and
- Updated facility map that includes the legal boundaries of the MOTBY property as outlined in the property deeds.

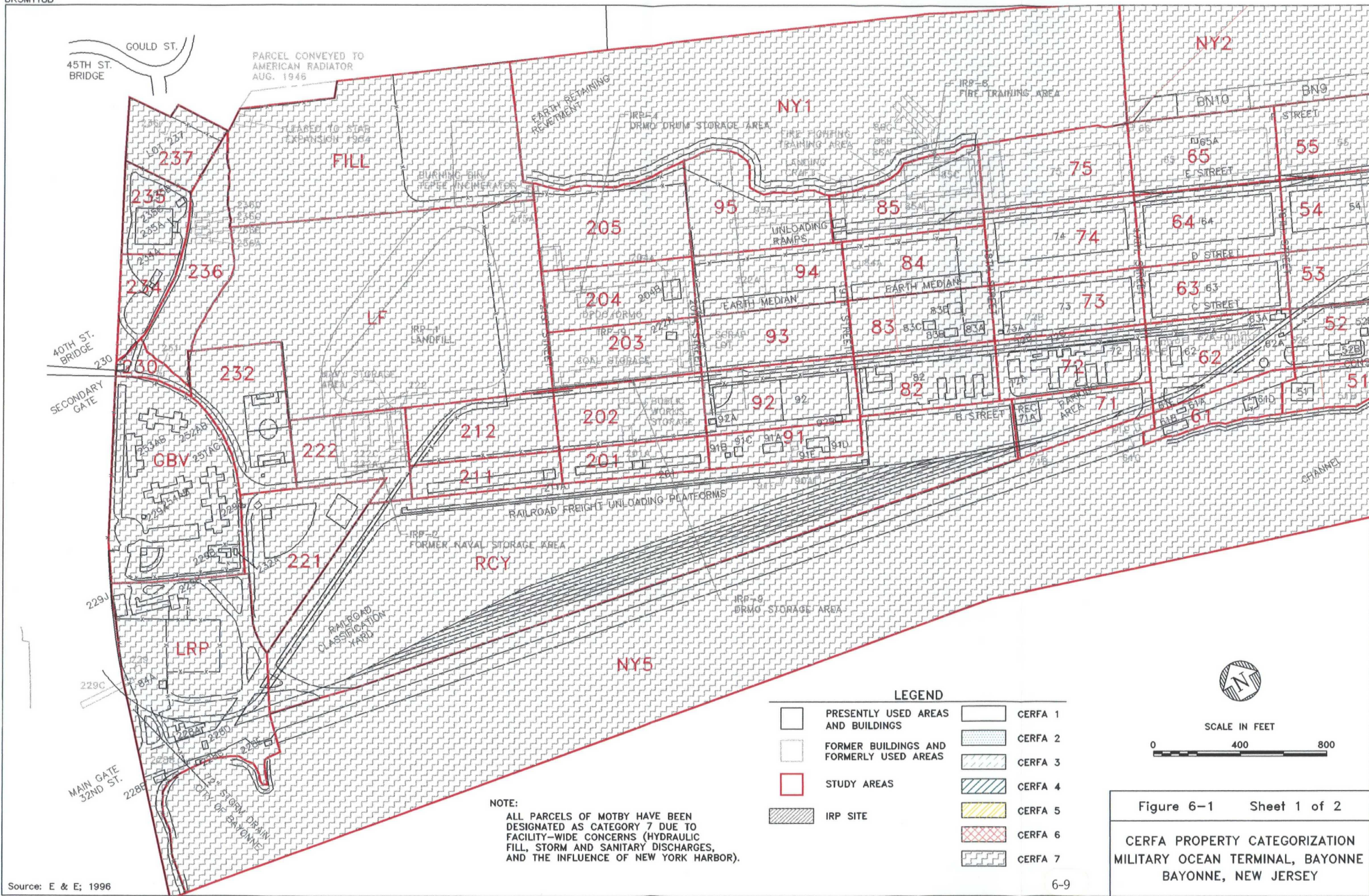
Data gap analysis is an iterative activity and should continue throughout the BRAC process. Some data gaps may be closed by further document research, while others may be closed by an on-site survey. Some data gaps may require site specific or facility-wide field investigation including environmental sampling and analysis. In addition, there is always the possibility that the nature of some of these identified data gaps could prove difficult to close, given the unknowns inherent in 57 years of operations at what was once the world's largest military ocean terminal.

## **6.4 Future Investigations**

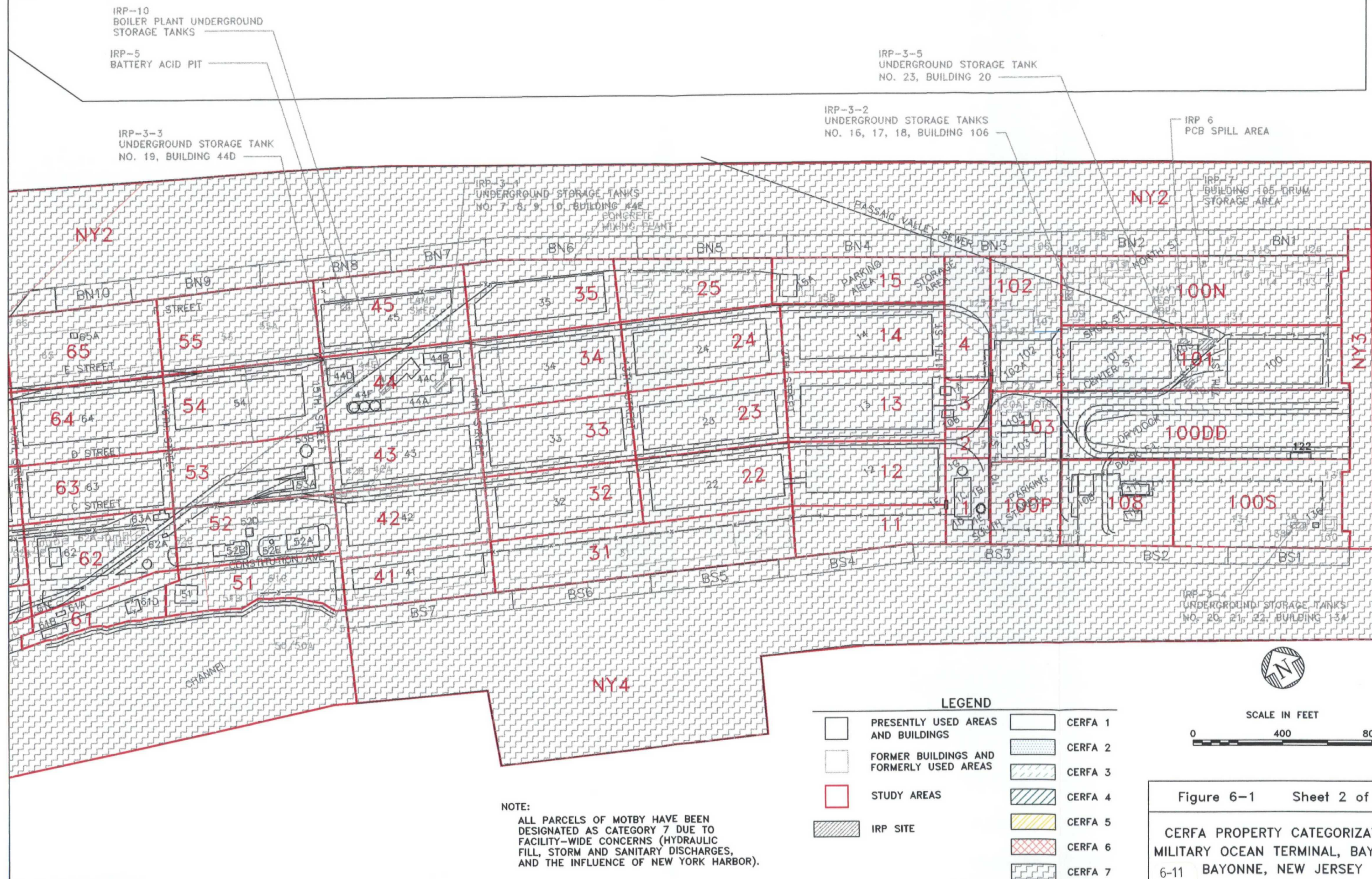
The purpose of the EBS is to establish a baseline of environmental conditions present at MOTBY, and thus future investigations or remedial efforts that may be required are not addressed in this document. Rather, the BRAC Closure Team (BCT) will use the findings of

the EBS as the basis for developing a BRAC Cleanup Plan (BCP) which will propose further action necessary to address identified concerns and establish schedules for the accomplishment of these tasks. Questions regarding the status of the BCP and/or future investigations or remedial work should be directed to the MOTBY BRAC Environmental Coordinator (BEC).

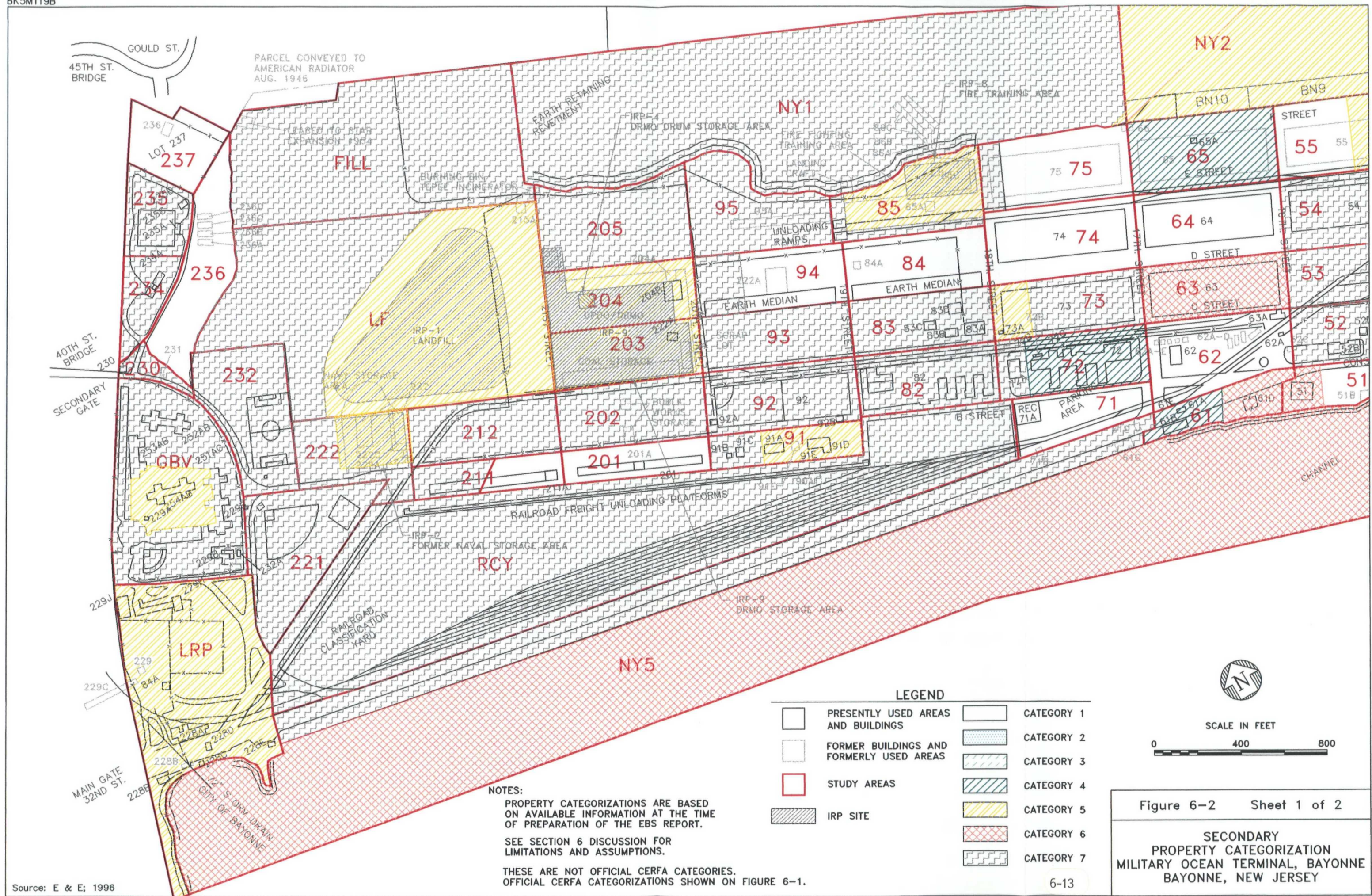




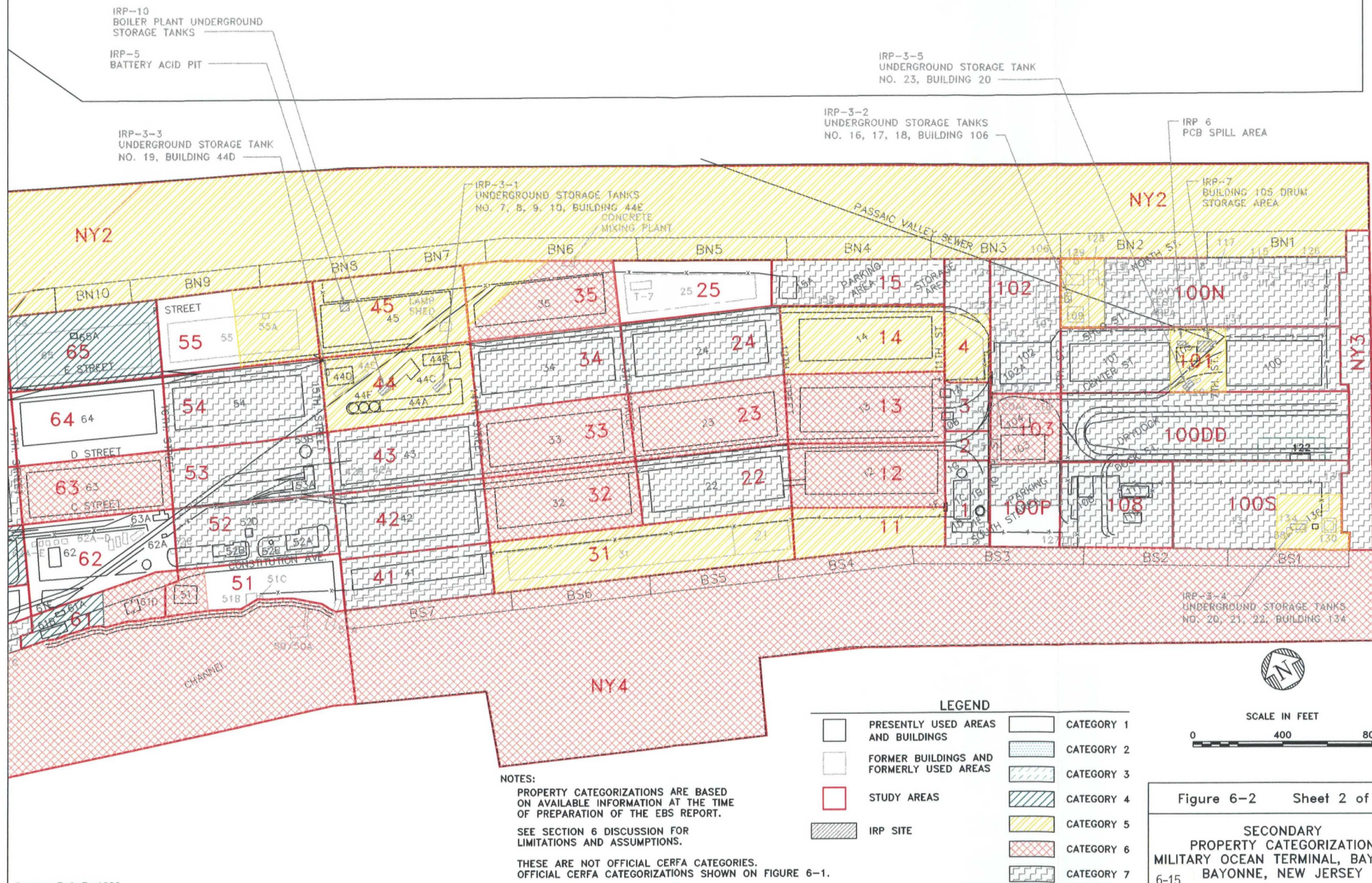




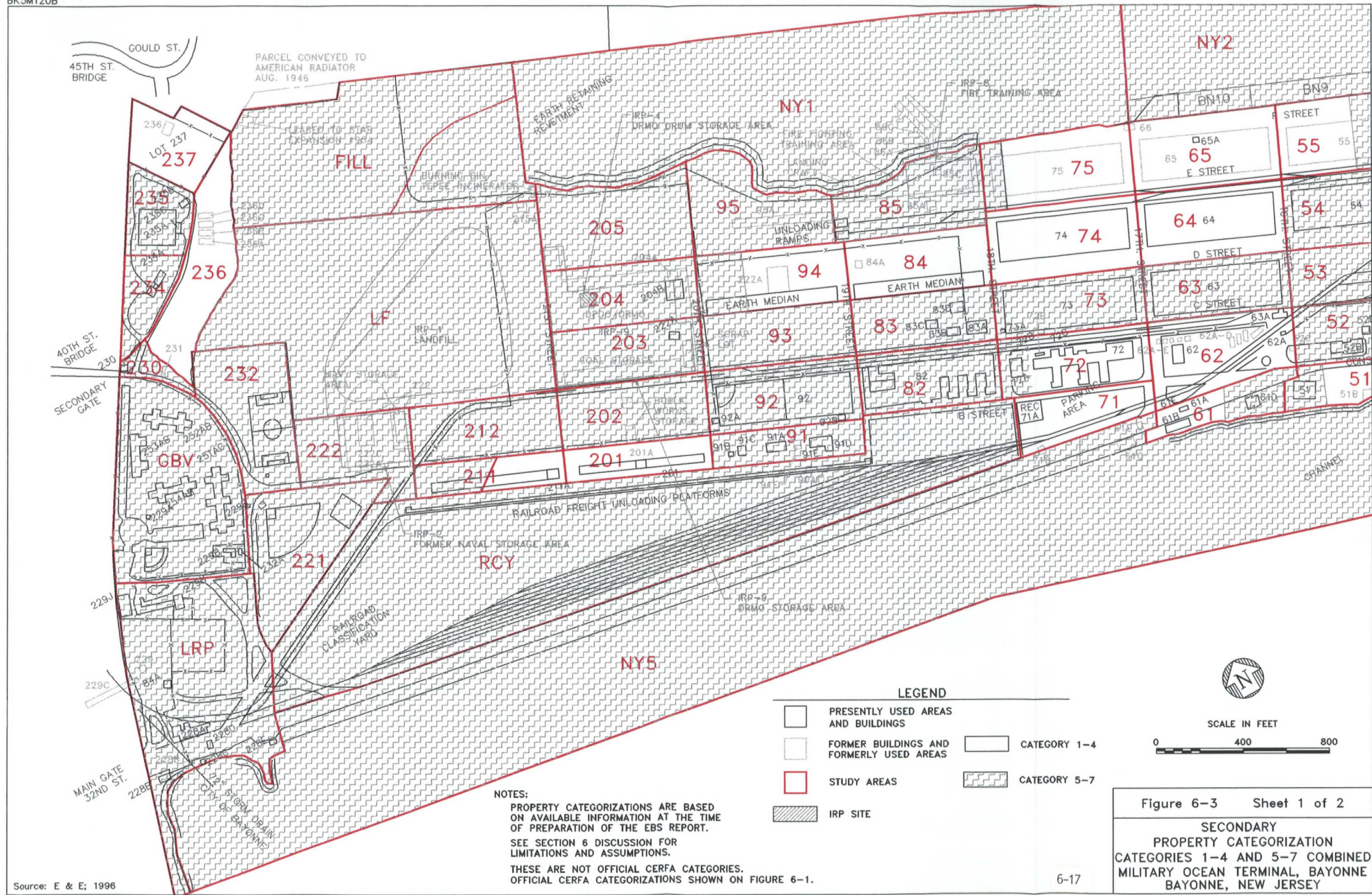
















CATEGORY 5-7

SECONDARY  
PROPERTY CATEGORIZATION  
CATEGORIES 1-4 AND 5-7 COMBINED  
MILITARY OCEAN TERMINAL, BAYONNE  
BAYONNE, NEW JERSEY



Table 6-1		
CERFA CATEGORIZATION SCHEME USED FOR THE EBS		
CERFA Category	Environmental Condition of Property	CERCLA Notification Requirements
1	Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).	No notification required; can be identified under CERCLA 120(h)(4) as "CERFA-uncontaminated"
	Areas where no evidence exists for the release or disposal of hazardous substances or petroleum products, or migration from adjacent areas. The parcel, however has historically been used to store less than reportable quantities of hazardous substances (as defined in 40 CFR 302.4), or 600 or fewer gallons of petroleum products.	No notification required.
2	Areas where only storage of more than reportable quantities of hazardous substances or 600 gallons of petroleum products has occurred, but storage has occurred for less than 1 year (no release, disposal, or migration from adjacent areas).	No notification required.
	Areas where only storage of more than reportable quantities of hazardous substances or more than 600 gallons of petroleum products has occurred, and storage has occurred for more than 1 year (no release, disposal or migration from adjacent areas).	Notification of storage, release, or disposal as prescribed in CERCLA 120(h) (1) for contracts for sale and (3) for deeds.
3	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.	
4	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred and all remedial actions necessary to protect human health and the environment have been taken.	
5	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred and removal, and/or remedial actions, are underway, but all required remedial actions have not yet been taken.	Not eligible for transfer by deed.
6	Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but required response actions have not yet been implemented.	
7	Areas that are unevaluated or require additional evaluation.	

## Section 7

**SIGN-OFF SHEET TO FOLLOW**

Upon receipt, please insert here, and remove this page

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## 8

## Glossary of Terms and Acronyms

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### 8.1 Glossary of Terms

**Aboveground Storage Tank.** A storage tank with its bottom surface not more than 6 inches below the surrounding ground surface.

**Absorption.** The process by which one material is captured into another chemically.

**Accumulation Point.** A storage location for hazardous waste or hazardous materials awaiting movement to a treatment, storage, and disposal (TSD) facility. A permit is not required for wastes stored in tanks or containers for less than 90 days.

**Acquisition.** Obtain, use, or control real property by purchase, condemnation, donation, exchange, easement, lease, revestment, and/or recapture.

**Aeration Tank.** A wastewater treatment unit in which wastewater is provided copious amounts of oxygen to foster biological purification.

**Alluvium.** Clay, silt, sand, gravel, or similar material deposited by running water.

**Ambient Air.** Any uncontained portion of the atmosphere during normal conditions.

**Aquifer.** The zone below the ground surface that contains sufficient saturated permeable material to yield economical quantities of water to wells or springs.

**Asbestos.** Six naturally occurring fibrous minerals found in certain types of rock formations. Of the six, the minerals chrysotile, amosite, and crocidolite have been most commonly used in building products. When mined and processed, asbestos is typically separated into very thin fibers. Because asbestos is strong, incombustible, and corrosion-resistant, asbestos was used in many commercial products beginning early in this century and peaking in the period from World War II into the 1970s. When inhaled in sufficient quantities, asbestos fibers can cause serious health problems.

**Asbestos-Containing Material (ACM).** Any material or product that contains more than 1 percent asbestos.

**Balk.** Normally a timber constructed wall of bulkheads allowing deep water at the shoreline.

**Bar Screen.** A large screen used to remove large floating and suspended solids during wastewater treatment.

**Bedrock.** Solid rock which underlies unconsolidated sediments and soils.

**Clarifier.** A wastewater treatment unit in which solids are mechanically removed from wastewater.

**Comminutor.** A wastewater treatment unit used to grind up the coarse solids in wastewater.

**Contaminants.** Undesirable substances rendering something unfit for use.

**Contamination.** The degradation of naturally occurring water, air, or soil quality either directly or indirectly as a result of human activities.

**Corrosive.** A material that has the ability to cause visible destruction of living tissue and has a destructive effect on other substances. Corrosive acids and bases are defined as having a  $\text{pH} \leq 2.0$  and  $\geq 12.5$ , respectively.

**DSERTS.** Defense Site Environmental Restoration Tracking System. A system used by the Department of Defense to follow the progression of environmental sites from identification to remediation from the point of view of funding.

**Deperming or Degaussing.** Removal of a permanent magnetic field from the hull of a ship. A ship's hull will become magnetized over time as a result of the magnetic field created by electrical equipment aboard the ship. During World War II, antiship mines were used that utilized a magnetic sensor detonation system. Periodically, ships went to a "deperming station" to remove the accumulated magnetic field from the hull thus providing protection from these types of mines. To effectively "degauss" a ship, a high voltage at a low current was applied to the ship's hull for a long period of time. Submarine batteries were used because they provided these performance specifications.

**Digestion.** The biochemical decomposition of organic matter.

**Discharge.** Release of groundwater in springs or wells, through evapotranspiration, or as outflow.

**Disposal.** The planned release or placement of waste in a manner that precludes recovery.

**Drywell.** Underground areas where soil has been removed and replaced with pea gravel, coarse sand, or large rocks. Drywells have been used for drainage, to control storm runoff, for the collection of spilled liquids (intentional and non-intentional) and wastewater disposal (now, often illegal).

**Effluent.** Waste material discharged into the environment.

**Environmental Protection Agency (EPA).** The independent federal agency, established in 1970, that regulates environmental matters and oversees the implementation of environmental laws.

**Environmental Protection Agency Hazardous Waste Number.** The number assigned by the Environmental Protection Agency to each hazardous waste listed in 40 CFR, Part 261, Subpart D, and to each characteristic identified in 40 CFR, Part 261, Subpart C.

**Floodplain.** The relatively flat land lying adjacent to a river channel that is covered by water when the river overflows its banks.

**Friable.** Easily crumbled or reduced to powder.

**Groundwater.** Water within the earth that supplies wells and springs.

**Groundwater Basin.** Subsurface structure having the character of a basin with respect to collection, retention, and outflow of water.

**Groundwater Recharge.** Absorption and addition of water to the zone of saturation.

**Hazardous Material.** Generally, a substance or mixture of substances that has the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or posing a substantial present or potential risk to human health or the environment. Use of these materials is regulated by agencies such as the U.S. Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and the Environmental Protection Agency.

**Hazardous Substance.** A hazardous substance as defined by CERCLA § 101.14 (42 USC §-9601(14)), is (A) any substance designated pursuant to Section 311(b)(2)(A) of the Federal Water Pollution Control Act (31 USC § 1321), (B) any element, compound, mixture, solution, or substance designated pursuant to Section 102 of CERCLA, (C) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress), (D) any toxic pollutant listed under Section 307(a) of the Federal Water Pollution Control Act, (E) any hazardous air pollutant listed under Section 112 of the Clean Air Act (42 USC § 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator (of EPA) has taken action pursuant to Section 7 of the Toxic Substances Control Act (15 USC § 2606). The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

**Hazardous Waste.** A waste, or combination of wastes, which, because of its quantity, concentration, or physical, chemical, or characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

**Heavy Metals.** Metallic elements like mercury, chromium, cadmium, arsenic, and lead with high molecular weights.

**Hydraulic Gradient.** The change in head with a change in distance in a given direction (head is the pressure on a fluid at a given point).

**Imhoff Tank.** A two-story tank in which sedimentation is accomplished in the upper compartment and digestion of settled solids is accomplished in the lower compartment.

**Installation Restoration Program (IRP).** The Air Force program designed to identify, characterize, and remediate environmental contamination on Air Force installations. Although widely accepted at the time, procedures followed prior to the mid-1970s for managing and disposing of many wastes often resulted in contamination of the environment. The program has established a process to evaluate past disposal sites, control the migration of contaminants, and control potential hazards to human health and the environment. Section 211 of the Superfund Amendments and Reauthorization Act (SARA) (10 USC § 2701), codified as the Defense Environmental Restoration Program (DERP), of which the Air Force IRP is a subset, ensures that the Department of Defense (DoD) has the authority to conduct its own environmental restoration programs. The DoD coordinates DERP activities with the EPA and appropriate state agencies.

**Kilowatt.** A unit of power equivalent to 1,000 watts.

**Landfill.** A disposal unit in which waste is placed and which is not a land treatment facility, surface impoundment, or injection well.

**Loam,** A soil composed of a mixture of clay, silt, sand, and organic matter.

**National Contingency Plan (NCP).** The National Oil and Hazardous Substances Pollution Contingency Plan, found at 40 CFR, Part 300, that is the EPA's blueprint on how hazardous substances are to be cleaned up pursuant to CERCLA.

**National Environmental Policy Act (NEPA).** Passed by Congress in 1969, NEPA (42 USC § 4321 *et seq.*) established a national policy designed to encourage consideration of the influences of human activities (e.g., population growth, high-density urbanization, industrial development) on the natural environment. NEPA also established the Council on Environmental Quality. NEPA procedures require that where significant environmental impacts may occur, information be made available to the public before decisions are made. Information contained in NEPA documents must focus on the relevant issues to facilitate the decision-making process.

**National Priorities List (NPL).** A list of national priorities developed from statutory criteria provided by the Hazard Ranking System. The list compiled by EPA pursuant to CERCLA § 105 (42 USC § 9605(a)(8)(B)) of properties with the highest priority for cleanup pursuant to EPA's Hazard Ranking System (see 40 CFR, Part 300).

**Permeability.** The capacity of a rock or sediment to transmit a fluid.

**Pesticides.** Any substance, organic or inorganic, used to destroy or inhibit the action of plant or animal pests; the term thus includes insecticides, herbicides, fungicides, rodenticides, miticides, fumigants, and repellents. All pesticides are toxic to humans to a greater or lesser degree. Pesticides vary in biodegradability.

**Petroleum.** The crude oil, condensate, and any finished or intermediate products manufactured in a petroleum refinery including fuel oils. However, technically fuel oils do not meet the ASTM definition for petroleum.

**Petroleum Products.** Petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of 42 USC § 9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). The word

fraction refers to certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil.

**PicoCurie.** One trillionth of a Curie, the unit used to measure radioactivity.

**Polychlorinated Biphenyls (PCBs).** Any of a family of industrial compounds produced by chlorination of biphenyls. These compounds accumulate in organisms and concentrate in the food chain with resultant pathogenic and teratogenic effects. They also decompose very slowly.

**Polychlorinated Biphenyls-Contaminated Equipment.** Equipment which contains a concentration of PCBs from 50 to 499 parts per million (ppm) and regulated by the EPA.

**Polychlorinated Biphenyls Equipment.** Equipment which contains a concentration of PCBs of 500 parts per million (ppm) or greater and regulated by the EPA.

**Potable Water.** Safe and drinkable water.

**Real Property.** Land; present possessory interest in land; surface water and groundwater within boundaries of such land; structures, fixtures, and other improvements on land; other interests or future interests in such land.

**Recharge.** The process by which water is absorbed and added to the zone of saturation, either directly into a formation or indirectly by way of another formation.

**Release.** Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes (a) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (b) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (c) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under Section 170 of such Act, or, for the purposes of Section 104 of this title or any other response action, any release of source byproduct, or special nuclear material from any processing site designated under Section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978, and (d) the normal application of fertilizer.

**Satellite Accumulation Point.** An area at or near the point of generation where up to 55 gallons of a hazardous waste and up to 1 quart of an acutely hazardous waste initially accumulate which is under control of operator of the process generating the waste. Containers with excess waste must be marked with the date the excess began accumulating and removed from the area within 3 days to a storage area.

**Sedimentation.** The process by which solids are allowed to fall out of the wastewater stream.

**Sludge Holding Tank.** The interim holding location for solids removed from the wastewater.

**Soil Association.** A collection of soils found to geographically occur together.

**Soil Series.** A group of soils having similar parent materials, genetic horizons, and arrangement in the soil profile.

**Solvent.** A substance that dissolves or can dissolve another substance.

**Spill.** Any unplanned discharge or release of hazardous wastes onto or into land, air, or water.

**Storage.** The holding of hazardous substances for a temporary period prior to the hazardous substances being either used, treated, and transported, or disposed of.

**Sump.** A pit, cistern, cesspool, or similar receptacle where liquids drain, collect, or are stored.

**Total Dissolved Solids.** The concentration of solid materials that are dissolved in a sample of water; determined as the weight of the residue of a water sample upon filtration and evaporation divided by the volume of the sample.

**Transfer.** Permits to other government agencies, donations, land exchanges, transfers of federal government property accountability, easements, leases, or licenses.

**Underground Storage Tank (UST).** Any tank, including underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10 percent or more beneath the surface of the ground.

**Water Table.** The locus of points in which the hydrostatic pressure of groundwater is equal to atmospheric pressure.

**Wetlands.** Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil. This classification includes swamps, marshes, bogs, and similar areas.

## 8.2 List of Acronyms

AAFES	Army and Air Force Exchange Service
ACM	asbestos containing material
AHERA	Asbestos Hazard Emergency Response Act
AMSL	above mean sea level
AQCR	air quality control regions
AR	Army Regulation
ASB	asbestos
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATMs	Alpha Track Monitors
BCP	BRAC Cleanup Plan
BFI	Browning Ferris Industries

bgs	below ground surface
BNA	base/neutral and acid extractable organic compound
BOD	biochemical oxygen demand
BOQ	bachelor officers' quarters
BRAC	Base Realignment and Closure
BSI	Braswell Shipyards, Inc.
BTO	Base Transfer Office
BW	Back Wash
CAAA-90	Clean Air Act Amendments of 1990
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERFA	Community Environmental Response Facilitation Act
CSOs	combined sewer overflows
cy	cubic yards
DEH	Directorate of Engineering and Housing
DoD	Department of Defense
DPDO	Defense Property Disposal Office
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System
DWSP	Drinking Water Surveillance Program
E & E	Ecology and Environment, Inc.
EAMTMTS	Military Traffic Management and Terminal Services, Eastern Area
EBS	environmental baseline survey
ECAS	Environmental Compliance Assessment
EIS	Environmental Impact Statement
EMO	Environmental Management Office
EPA	United States Environmental Protection Agency
EPR	Environmental Program Review
ERIIS	Environmental Risk Information and Imaging Services
ERNS	Emergency Response Notification System
FINDS	Facility Index System
FOSL/FOST	Finding of Suitability to Lease/Finding of Suitability to Transfer
FPWA	Federal Public Works Administration
FRDS	Federal Reporting Data System



ft <sup>3</sup> /s	cubic feet per second
FY	Fiscal Year
gpm	gallons per minute
GSA	General Services Administration
HMS	hazardous materials storage
HR	hazardous releases
HRS	Hazardous Ranking System
HSC	Health Services Command
HWD	Hazardous waste disposal
HWS	hazardous waste storage
IDA	Industrial Department Annex
IMTT	International Maytex Tank Terminal
IRP	Installation Restoration Program
kVA	kilovolt-ampere
kvp	kilovolt peak
kW	kilowatt
LAW	light antitank weapon
LBP	lead-based paint
LRST	New Jersey Leaking Underground Storage Tank Report
m <sup>3</sup> /s	cubic meters per second
mA	milliampere
MDAP	Mutual Defense Assistance Program
MEDDAC	Medical Department Activity
MG	million gallon
MGD	million gallons per day
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
μg/kg	micrograms per kilogram
mmBtu/hr	million British thermal units per hour
MOTBY	Military Ocean Terminal in Bayonne, New Jersey
MOTSU	Military Ocean Terminal at Sunny Point
MSC	Military Sealift Command
MSTS	Military Sea Transportation Service
MTMCEA	Military Traffic Management Command, Eastern Area
MTMTC	Military Traffic Management and Terminal Command

MTMTS	Military Traffic Management and Terminal Service
NAAQS	National Ambient Air Quality Standards
NAD	Naval Ammunition Depot
NATO	North Atlantic Treaty Organization
NFRAP	No Further Remedial Action Planned
NJDEP	New Jersey Department of Environmental Protection
NJDEPE	New Jersey Department of Environmental Protection and Energy
NJPDES	New Jersey Pollutant Discharge Elimination System
NO <sub>x</sub>	oxides of nitrogen
NOV/CD	Notice of Violation/Compliance Demand
NPDWR	National Primary Drinking Water Regulations
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NSC	Naval Supply Center
NSCS	Naval Supply Corps School
NSD	Naval Supply Depot
NSDWR	National Secondary Drinking Water Regulations
NSOTC	Naval Supply Operational Training Center
NSRDF	Naval Supply Research and Development Facility
NWS	Naval Weapon Station
OPA	Oil Pollution Act of 1990
OWS	oil/water separator
PAHs	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
pCi/L	picoCuries per liter
POLs	petroleum, oil, and lubricants
POVs	privately owned vehicles
ppm	parts per million
PSE&G	Public Service Electric and Gas Company
psi	pounds per square inch
PVNTMED Svc	Preventive Medicine Service
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RI	remedial investigation

RI/RA	Remedial Investigation/Remedial Alternative
RoRo	Roll-on/Roll-off
ROW	right of way
RPM	revolutions per minute
RST	New Jersey Underground Storage Tank Report
R&D	research and development
SARA	Superfund Amendments and Reauthorization Act
SPCC	Spill Prevention Control and Countermeasures
SPPP	stormwater pollution prevention plan
SPTC	septic system
SRU	silver recovery unit
STP	sewage treatment plant
SWF	New Jersey Solid Waste Landfill Report
TAL	Target Analyte List
TCL	Target Compound List
TCLP	toxicity characteristic leaching procedure
TDS	total dissolved solids
TKN	total kjeldahl nitrogen
TOC	total organic carbon
TPH	total petroleum hydrocarbon
TPY	tons per year
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSS	total suspended solids
UN	United Nations
USACE	United States Army Corps of Engineers
USACHPPMS	United States Army Center for Health Promotion and Preventative Medicine
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency
USAHC	United States Army Health Clinic
USATHAMA	United States Army Toxic and Hazardous Materials Agency
UST	underground storage tank
VOCs	volatile organic compounds

**9.1 References**

A massive document review process was undertaken for this EBS. Text, maps, and photographs were collected into files which were assigned a sequential number and a descriptive title. The files have been organized so that several documents covering the same general topic can be grouped together into one file when appropriate. The reference files have been numbered as follows: text files are numbered 1 through 499, maps are numbered 500 through 699, photographs are numbered 700 through 799, E & E log books and notebooks are numbered 800 through 899, and guidance documents are numbered 900 through 999. Table 9-1 provides a list of the files.

**9.2 Persons Contacted**

As part of the information collection and review process, many individuals were interviewed at MOTBY. Table 9-2 provides a list of those individuals. Log books with entries documenting and summarizing the interviews are part of the reference file.

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
<b>TEXT FILES</b>		
1	Bayonne Emergency Response Commission (BERC) Mailing List	3/22/92
2	Hazardous Substance/Hazardous Waste Ordinance for City of Bayonne	4/19/91
3	USAEHA Leachate Investigation No. 38-26-0382-84	3/19/84
4	Supplement to Environmental Assessment Statement for Consolidated Pier Deliveries (CPD) at MOTBY	3/17/81
5	Building 14 Hazardous Material Update and Waste Removal	2/14/90
6	Asbestos Removal Building #44B	1/25/93
7	Spill-Fuel Oil at Building #44C	7/22/93
8	Spill-Memo on Repeated Oil Contamination at Building #44c	
9	Building #44D EPA Inspection memo (91); Hazardous Waste Violations (92); Secondary Containment Violations (93)	8/30/91
10	Above-ground Fuel Storage Capacities	
11	Environmental Assessment Statement for Consolidated Pier Deliveries (CPD) on MOTBY	8/1/80
12	Spill-Building #53A	7/14/95
13	UST/AST MOTBY Environmental Office Project File #1	1/1/94
14	UST/AST MOTBY Environmental Office Project File #2	1/1/83
15	Alterations to Building 111 for Hazmat Accumulation Point; Demolition of Buildings 54A and 64A	6/27/90
16	Building 14 Hazardous Material from the Cape Lobos	8/1/91
17	Analysis of Lead in Drinking Water System, MOTBY	12/1/92
18	USAEHA Industrial Hygiene Study No. 55-61-0213-91 - Indoor Firing Range Building 72A	10/29/90

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
19	RCRA Enforcement Sampling Inspection (Also - Bldg. 100 Flatrack Sandblasting; paint disposal; soil and wipe sampling; remediation note	9/24/92
20	POL Disposal by Burning, Use as Dust Suppressant, or Direct Burial	
21	Environmental Achievements at MOTBY	12/10/93
22	COE-MOTBY Planning Studies-Meeting Agenda, Notes, and Utilization Study	10/30/89
23	Mobilization Master Plan for MOTBY	8/1/91
24	MOTBY Base Guide	1/1/90
25	Status of Dredging at MOTBY	2/23/93
26	USAEHA Occupational Health Survey No. 65-32-0984-80, 4-7 September, 1979	9/4/79
27	USAEHA Water Quality Engineering Consultation No. 24-0262-81, 16 - 18 September, 1979	9/16/79
28	Installation Status Report	4/25/94
29	Radiation Control Meeting	5/30/91
30	Environmental Audit Questionnaire	1/1/93
31	Installation Natural Resources Report and Management Plan (1983 & 1993)	9/1/83
32	USAEHA Industrial Hygiene Survey No. 61-0232-78	7/11/77
33	Defense Printing Service Detachment Office ISSA Agreement (Building 42/5)	8/11/92
34	Base Memo to NJ Historic Preservation Office	12/28/94
35	MOTBY History Sheet	
36	New York Harbor Water Quality Survey	1/1/93
37	NJDEP Compliance Evaluation Inspection (STP and Building 34/35)	6/29/90

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
38	Site Inspection Report for Wetlands at MOTBY	10/18/94
39	Spill/Discharge Prevention, Containment, and Countermeasures (S/DPCC) Plan; Discharge Cleanup and Removal (DCR) Plan; Emergency Response Action Plan (ERAP); Facility Response Plan; Standard Operating Procedures; Contingency Plan	2/1/95
40	Sanitary Sludge Reports (8/94-10/94); Consolidated Permit Application for Sludge Beds (10/94); Sludge Quality Assurance Report (3/29/95)	1/1/94
41	Stormwater Discharge Permit	7/7/93
42	NJPDES Permit for MOTBY	1/1/84
43	Operation and Management Concerns at Sewage Treatment Plants	9/4/90
44	NJPDES Emergency Plan	8/17/82
45	Moved to 905	
46	Annual NJDEP Audit Inspection (Re UST Integrity Testing)	12/8/94
47	USEPA Inspection and NOV for Satellite Accumulation in Building 42/2 and 45 and Tank at 44D	12/6/93
48	Air Permits for the PX Gas Station(91D)	4/22/95
49	ROW Investigations Near MOTBY Front Gate (with Analysis)	2/11/92
50	NJPDES Compliance Evaluation Inspection of STP and B-34/35	6/28/91
51	Spill Response Notification (95-8-29-1427-45); 100-150 Gal Hydraulic Fluid at Dock	8/29/95
52	Non-Attainment Area Status for MOTBY Area	11/7/90
53	Spill-Fuel Oil Leak at B-229J (94-6-22-1006-24)	6/22/94
54	Spill-American Falcon at Berth 10	5/20/94
55	Spills - Oil Leaks at Boiler Plant, Wharf Pipeline, Storm Sewer(94-2-2-1656-28)	2/2/94



Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
56	Spill - Fuel Oil near Liberty Lodge	2/28/94
57	USCG Memo Re: Eckloff Marine Spill (Not at MOTBY?)	3/2/90
58	Spill - Diesel/Hydraulic oil South of Building 100 (92-11-2-0841-06)	11/1/92
59	Spill - PCBs at DRMO (Building 63)	6/11/92
60	Sampling at "MOTBY APTS."	4/1/92
61	Spill - Fuel Oil at Building 44C (92-3-19-1714-09)	3/19/92
62	Gas Spill Cleanup Drums	1/10/92
63	Spill - Motor Oil from Van near Lot 53 (91-10-21-2014-14)	10/21/92
64	Clean-up of Soil and Trenches between 44C and 35	1/1/91
65	Spill-Small amount of No. 6 Fuel Oil at Berth N-6	9/10/91
66	Spill - Diesel at Berth N-4	8/23/91
67	Spills - Abandoned Heating Oil Transfer Line near B-35 and BT Nautilus	1/1/90
68	Spill - Fuel Oil at UST at B-44C	10/24/91
69	Spill - Heavy Oil South Side of B-44C	4/13/91
70	Spills - Oil Delivery Line trench at B-44C; Blow down tanks cents at 44C; Pipeline Leaks; Slop tank behind B-44C	4/10/91
71	Spill - Oil from Fuel Transfer boom at Berth N-7 (91-3-20-946)	3/20/91
72	SPCC Field Inspection	4/12/91
73	Spill - PCB Oil Spill at Boiler Plant	2/6/88
74	Spill - Hydraulic Oil at B-44A (93-2-24-0936)	2/24/93

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
75	Spill - Fuel Oil at Liberty Lodge	2/13/93
76	Specification for Installation of Oil Spillage Containment Facilities at Berths N-6 and N-8	1/1/77
77	Spill - Fuel Oil at GBV Tanks	5/14/93
78	FFCA Notice of Violations; Memorandums; Remedial Actions Re: Hazmat/Waste Handling Practices and Building 14 and Building 42 Photo Lab	1/1/90
79	Moved to 906	
80	Oily Waste Reception Facility at MOTBY	4/14/86
81	Spill? - PCB oil in Pump room	3/4/92
82	Preliminary Assessment Screenings (PASs) for Buildings 11, 12, 22, 31,32, 34, 35, 41, 42/1, 52A, 52C, 63, 64A , 82, 91A, 91F,120, 130, Lots 202-205 and Lots 212-215	1/1/92
83	Rehabilitation of Navy Publications and Printing Service Area , Building 42/2	3/6/87
84	USAEHA Installation Integrated Pest Management Assessment No. 61-0579-81, 15 - 19 September, 1980	9/15/80
85	Memo RE: Oily Waste reception Facility Program	3/21/86
86	Results of Asbestos Survey and Lead Testing at Building 35 and 44	7/21/92
87	NJPDES Permit No. NJ0020257 for STP and Cooling Waters from the Refrigeration Plant	6/11/84
88	USAEHA Pest Management Survey No. 16-61-AW71-93	2/16/93
89	Pest Management Report for MOTBY	8/1/94
90	Specifications for the Removal of Contaminated Soil at Open Storage Area 85 (Fire Training Area?)	7/1/92
91	Pest Management Plan	4/5/91
92	NJDEP Air Permit for Bld 91-D Gasoline Tanks	

Table 9-1  
LIST OF REFERENCE FILES

File Number	Title	Sort Date
93	USAEHA, Air Pollution Emission Assessment Study No. 42-21-M442-94, Boiler Test	4/26/95
94	Spill - PCB Oil from Transformer at Lot-55	7/19/91
95	Coastal Zone Management Consistency for Repair of South Seawall	1/18/95
96	Emergency Potable Water Plan, MOTBY	7/16/93
97	Drinking Water Surveillance Program	1/1/89
98	Contracting for Emergency Spill Clean-up and Disposal at Berth N-4, Lot 65, and to Decontaminate area around Railroad Pump at B-53A	8/30/95
99	Drinking Water Surveillance Program, Laboratory Analysis	4/28/88
100	USAEHA Pest Resistance Special Study No. 44-0402-82, 1 Jan - 31 Dec. 1981	1/1/81
101	USAEHA Potable/Recreational Water Quality Survey No. 31-61-0136-79 and Wastewater Engineering Survey No. 32-61-0137-79, MOTBY	5/14/79
102	USAEHA Hazardous Waste Consultation No. 37-26-0212-83	5/13/82
103	Moved to Ref. 32	7/11/77
104	USAEHA Installation Pest Management Program Review No. 16-61-0578-81	9/15/80
105	USAEHA Environmental Assessment No. 24-1402-77, 1976 - 1977	6/1/76
106	Purchase Requests for Various Remedial Actions	1/1/94
107	Subclassification of Tidal Waters in Artificial Fill at MOTBY	9/30/94
108	IRP Site Status at MOTBY	
109	Moved to 907	
110	Preliminary Assessment Screening for Building 236 A-D; Record of Environmental Consideration for Demolishing Buildings 91 F, 102, 103, 104 and Replacement and Removal of USTS at Bldg. 229H and 229J	1/1/94

<p><b>Table 9-1</b></p> <p><b>LIST OF REFERENCE FILES</b></p>		
<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
111	Radon Monitoring Results for the Army Radon Reduction Program	5/30/90
112	Press Releases and Public Affairs Memos regarding Env. Conditions at MOTBY	
113	Building Rehabilitation and Removal Status Update	4/1/93
114	FY 1992 Environmental Project List	12/3/91
115	Sampling and Analysis at MOTBY by Weston (Drydock No. 7 and Building 14 Drums)	5/1/92
116	1991 Hazardous Waste Management Plan for MOTBY and 1995 Mark-up by Steve Krieg, MOTBY Env. Office 11/3/95	8/15/91
117	Hazardous Material/Hazardous Waste Storage Inspection Records 3/20/89 to 10/10/90	1/1/89
118	USAEHA Water Quality Engineering Consultation No. 32-24-8874-83, Ship Waste Handling Facilities, 6 - 7 october, 1982	10/6/82
119	USAEHA Occupational Health Survey No. 32-0110-83, 13 - 16 December, 1982	12/13/82
120	Remedial Action Investigation and Analysis by Weston for Building 14	1/1/92
121	1989 Discharge Prevention, Control, and Countermeasures (DPCC) Plan and Discharge Cleanup and Removal (DCR) Plan for MOTBY	1/1/89
122	Federal Facility Compliance Agreement (FFCA) Docket RCRA 86-0112 for MOTBY	9/26/88
123	Compliance Evaluation Inspection (CEA) for MOTBY NJPDES Permit No. NJ0020257	12/12/93
124	RCRA Part A Application for DRMO at MOTBY	5/20/81
125	RCRA Compliance Inspection; EPA Hazwaste Inspection; Internal Hazwaste Inspection	6/24/86
126	MOTBY Responses to NJDEP NOV	5/24/85
127	Status of MOTBY PCB Transformers and Equipment	10/2/85
128	PCB Transformer Inspection (1992); List of Transformers and Locations (no date); PCB Inspection 6/85; PCB Inspection Record Jan to Mar 1985; PCB Transformer Inspection 1980	1/1/80

Table 9-1  
LIST OF REFERENCE FILES

File Number	Title	Sort Date
129	PCB Transformer Storage and Disposal	12/31/85
130	IRP Summary of Landfill Status	9/20/85
131	Responses to Congressional Inquiry Into Hazwast Disposal Practices at MOTBY	12/6/85
132	NJDEP Hazwaste Inspection, Administrative Order and Base Response	3/7/85
133	Spills and Remediation Reports: Oil Spill at Berth N-6 on 10/24/75; Oil Spill near Berth N-8 10/13/77; Oil Spill at Berth N-6 on 12/6/77; Oil Spill at Berth S-4 on 6/7/82; Small spills in 1982; Oil Spill at Berth N-8 on 1/24/85	
134	PCB Inventories and Disposal Records	1/1/85
135	List of USTs and ASTs	
136	Asbestos Repair Work and Air Monitoring in Building 12 and 22, Modules 1,3,4,5,6 and Garage	1/1/92
137	Preliminary Assessment Screening for FBI (Building 42/6)	
138	Appraisal of Land and Piers Owned by the City of Bayonne and Occupied by the McAllister Lighterage Company	1/14/44
139	Memo: Conference Call with Mr. James Sanderson, EPA	5/31/90
140	USEPA NOV and Compliance Demand Docket No. II-RCRA-90-0104	12/29/89
141	Ozone-Depleting Substance (ODS) Status	1/11/94
142	USAEHA Mobilization Environmental Evaluation No. 32-24-H634-92	3/9/92
143	Memo: Re: Dredging at MOTBY (and amphopod testing)	4/12/94
144	NJDEP 1994 Hazardous Waste Report for MOTBY	1/1/94
145	NJDEP Permit Documents for South Side Bulkline Repair Project	1/19/95
146	USAEHA Installation Pest Management Program Review No. 61-0572-83, 9 - 12 August, 1982	8/9/82
147	Request for Landfill Closure and Summary of Investigations	1/1/88

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
148	MOTBY Personnel Summary	9/30/79
149	Public Affairs Release on RI	11/20/87
150	Fumigation of buildings 54 and 64	5/18/81
151	Fogging Operation in Building 42 (1984-5) and Pesticide Technical Assistance for Infestation in Building 42 (1984)	1/1/84
152	USAEHA Integrated Pest Management/ Pest Resistance Assessment No. 44-0432-85, 20 - 24 May, 1985	5/20/85
153	Base Memos concerning 'USAEHA Installation Pest Management Program Review No. 16-61-0578-81( See Ref. 104)	9/15/80
154	MOTBY Groundwater Assessment Initial Survey	6/16/86
155	Public Involvement and Response Plan Interview Notes	10/3/88
156	BRAC 95 Installation Environmental Baseline Survey	4/29/94
157	Sediment Toxicity Testing in New York/Newark Bays	9/8/93
158	MOTBY Fac. Eng. Env. UST File Documents 1993-1994	1/1/93
159	Hazardous Waste Profile Sheet for 1992	1/1/92
160	Industrial Hygiene Survey of the International Terminal Operating Co. Warehouse Areas ( Buildings 23, 24, 33, 43, 54,64,73,74W,74E, 83A)	7/25/86
161	Moved to 193	1/1/80
162	Site Investigation Report by PMK Group for Building 104 and Building 235 USTs	10/17/94
163	MOTBY Building Data (Binder)	11/30/84
164	Final Environmental Impact Statement for Port Jersey	12/1/87
165	USAEHA Air Pollution Consultation No. 21-0451-84: Evaluation of Air Pollution Impact Dry Dock Painting Operations, July, 1984	7/1/84

Table 9-1  
LIST OF REFERENCE FILES

File Number	Title	Sort Date
166	USAEHA Potable/Recreational Water Quality Survey No. 62-0128-85, 14 - 18 January, 1985	1/14/85
167	Pumpwell Sludge Analysis (Drydock)	7/19/93
168	Initial Waste Characterization of B53A	2/20/92
169	Soil Analytical Results at 53A	1/20/95
170	Motor Leak Pumpwell Sampling (Drydock?)	3/2/92
171	PCB Drum at Bldg 14 Sampling	2/10/92
172	Separator Sludge Sampling	6/21/95
173	NJDEP 1988 Inspection	1/1/88
174	MOTBY Dredging Permits for 1978 and 1983	1/1/78
175	DOD Inspector General (IG) Environmental Inspection and Base Reponses	5/23/90
176	MOTBY Third Party Defendent in United Technologies Case	6/27/86
177	Health Hazard Inventory of the MOTBY Wood Craft Shop, Building 228A	10/14/86
178	1990 Facility-Wide AR-15 Investigation of Hazardous Waste at MOTBY ( Maj. Benjamin) [2-part Binder and Binder of Photos]	1/1/90
179	1990 Inventory of Federal Hazardous Waste Activities	1/1/90
180	USEPA RCRA NOV/Compliance Demand RCRA Docket No. 86-0112 ( Also See Ref. 122)	11/10/86
181	USAEHA Hazardous Waste Management Survey at MOTBY No. 37-26-0726-87	9/15/86
182	USEPA Hazardous Waste Facility Inspection at MOTBY	4/1/87
183	UST and Contaminated Soil Removals at MOTBY	7/22/93
184	Repair of 8 PCB Transformers in Drydock Area	4/17/84



<b>Table 9-1</b> <b>LIST OF REFERENCE FILES</b>		
<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
185	UST Information Update	12/22/93
186	Specifications, Reports and Analysis for Steam Cleaning and Decontamination of Building 14	6/1/92
187	Spill Prevention Control and Countermeasure (SPCC) Plan for BSI Corporation Bayonne Facility, Graving Dock MOTBY	
188	Environmental Assessment of The Transfer of the Lease to the Shipyard and Rehabilitation of Berths E-1 and E-2	1/1/88
189	Environmental Compliance Assessment System (ECAS)Report, MOTBY	12/1/94
190	NJDEP Compliance Evaluation Inspection for NJPDES	6/2/81
191	Lead Sampling at Building 31 and 32	2/9/93
192	Moved to 908	
193	USATHAMA Installation Assessment of Military Ocean Terminal, Bayonne, New Jersey, Report No. 182	9/1/80
194	Air Pollution Emission Statement, MOTBY	12/20/93
195	Remedial Action Report (for former LUST near Building 53 A)	6/6/95
196	USAEHA Industrial Hygiene Program Review No. 59-61-0213-90, 25 - 28 September, 1989	9/25/89
197	EPA Multimedia Inspection (TSCA-PCBs, RCRA, NPDES, NSPS-Air, etc.)	12/7/93
198	Excerpt from 1993 Maintenance Contract Re: Use of Building 111 for Hazardous Material Storage	1/1/93
199	EPA Environmental Evaluation Report of Emission Sources (at MOTBY)	9/24/82
200	EPA Air Pollutant Emissions Report for MOTBY	9/16/76
201	Defense Environmental Status Reports for 1984 and 1985	1/1/84
202	Affidavit of Reponse to NJDEP July 8, 1985 NOV and notes on Retrograde HW Shipments from Europe	1/1/85
203	Spill - Oil at Berth N-8 and LUSTs at Building 44	1/1/85

**Table 9-1**  
**LIST OF REFERENCE FILES**

<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
204	Memo Re: Disposal of Microfilm Waste Solvent into Sanitary Sewer	8/7/84
205	Inventory of Hazardous Waste Generation Areas at MOTBY	7/8/86
206	Site Assessment Summaries for UST Removals/Radiations of Tanks 4 - 13, 15-22, 29, 32	1/1/92
207	Selected Correspondence from Third Naval District Commandant's Files Re: Submarine Nets and Batteries	1/1/39
208	Command History US Naval Supply Research and Development Facility	11/1/59
209	Various Memos regarding Planned Reduction in Mission at NSD Bayonne	1/1/47
210	Command History, U.S. Naval Supply Research and Development Facility, NSD Bayonne	12/1/61
211	Command History, U.S. Naval Supply Center, Bayonne	1/1/61
212	U.S. Naval Supply Depot, Bayonne, Facility Correspondence	1/1/42
213	Statement of Mission, Naval Supply Depot, Bayonne and Other Correspondence	1/1/46
214	Survey of New York Port Facilities (Repair Upkeep, and Maintenance, Including Salvage, Vessels and Units of the Armed Services)	1/15/49
215	Report on Ammunition and Explosives Storage and Handling -- Ammunition Loading Points and Back-Up Depots in the New York Port Area (no mention of NSD Bayonne)	12/15/48
216	Naval Supply Depot Bayonne List of 9 Boxes and Files sent to Naval Records Management Center (Mechanicsburg, PA)	1/31/58
217	Annual Inspection Summary of Naval Supply Depot, Bayonne	10/1/56
218	Construction Notes, Naval Supply Depot Bayonne	1/1/51
219	Fire and Explosion Report for Explosion aboard LCM #29109 at Berth N-3	1/10/56
220	Quarterly Historical Record Reports for Naval Supply Depot Bayonne	7/1/43

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<b>Table 9-1</b> <b>LIST OF REFERENCE FILES</b>		
<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
221	Correspondence Re: Proposal for Munitions Terminal at or Near Naval Supply Depot Bayonne and other 1941 Correspondence RE: Fuel Oil and Munitions	1/1/41
222	Annual Inspection Report of Public Works and Utilities at the Naval Supply Depot Bayonne (1/1/51); Report of Fire Fighting Inspection (9/4/51); Inspection report (1953)	1/1/51
223	Historical Summary "U.S. Naval Supply Depot, Bayonne New Jersey: Now and Then"	1/1/41
224	The Port of New York - Bayonne Terminal" , Article in Civil Engineering Volume 10 Number 7	7/1/40
225	Cumulative History, Naval Supply Depot, Bayonne, 1940 - 1944	8/1/44
226	Building 4 ( Cleanup of Northeast Mobilization Area) Drums, Boxes, Bags ( Incl. Sodium Ferrocyanide) and Design Notes of Building 4 Demolition	8/29/85
227	Defense Property Disposal Office (DPDO) Bayonne Description of Generators for DPDO	3/1/85
228	Spills: Sulfuric Acid at Building 43 (5/7/86); Hydraulic Fluid at 32nd St. gate (5/13/86	1/1/86
229	Hazardous Waste Storage Violations at DRMO MOTBY	1/1/85
230	Used Solvent Elimination Program at MOTBY	1/1/84
231	Environmental Management Checklist	1/1/83
232	Miscellaneous Correspondence 1943 - 1957: Hazardous Ship; Gasoline Mock-Up; trasnformers; "radiac" equipment; ordnance note, etc.	1/1/43
233	Review Notes Re: Property Records, Real Estate Division, Facilities Engineering Army Garrison Bayonne (By Nermin Ahmad, E & E)	11/8/95
234	Industrial Areas Study, City of Bayonne, New Jersey (Office of Community Development, Bayonne, NJ)	1/1/86
235	NJDEP Stack Log Listing for MOTBY	11/11/90
236	Environmental Assessment, U.S. Coast Guard Relocation to MOTBY (Preliminary EA)	2/24/95

Table 9-1  
LIST OF REFERENCE FILES

File Number	Title	Sort Date
237	MOTBY Real Estate Summary List of ISSAs and Permits (Pat Garrone)	11/8/95
238	MOTBY 1984, 1987 SPCC Plans (with markup by RW of E & E)	1/1/84
239	Minutes of Meeting Between MOTBY and DRMO	2/7/90
240	Finding of No Significant Impact (FONSI) for Outlease of U.S. Army Graving Dry Dock No. 7 at MOTBY	11/15/93
241	Preliminary Assessment Screening (PAS) and Addendum for Drydock No. 7 MOTBY	6/1/92
242	Memo Re: Fire Hazard Conditions in Building 32	2/7/95
243	Real Property Card, Facility No. 27 for "Appl. Instr. Bldg." Re: Naval Training Unit (mentions "...amite Control House)	3/1/67
244	Organization Files from NSD Bayonne Re: Torpedo Distribution; Activities Sported; Mission; Organizations and Functions	1/1/50
245	Selected Historical Files from the third naval District Re: Utilization of Berths; Command Histories	1/1/57
246	File Review Notes National Archives NE Region Review on 11/7/95	1/1/37
247	Spill Reports, City of Bayonne	1/1/89
248	Contact Report for Mtg with J. Monkowski	11/8/95
249	Other Fed. Agencies at MOTBY (Real Estate Prop. Review)	11/6/95
250	Hudson Regional Health Commission MOTBY File Review, 1974-1995	11/9/95
251	Bayonne Fire Prevention Bureau Office, MOTBY File Review	11/9/95
252	MOTBY FD Incident Log Review for 1990-1991	11/9/95
253	Asbestos Management Plan, MOTBY	7/1/92
254	Draft Title V Permit Application, MOTBY, Jan. 16, 1996, USACHPPM	1/16/96

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**Table 9-1**  
**LIST OF REFERENCE FILES**

File Number	Title	Sort Date
255	General Specifications for Convault Vaulted Aboveground Storage Tanks, Convault, Inc. No date	
256	USAEHA Preliminary Air Pollution Engineering Survey No. 21-025-71, 10-12 February, 1971	2/10/71
257	USAEHA Radiation Protection Surveys: 1976, 1980, 1984, 1987, 1990	3/22/76
258	USAEHA Installation Pest Management Program Survey No. 61-0578-78, 15 - 19 January, 1978	1/15/78
259	Dames & Moore, Draft Revised Phase I Remedial Investigation for MOTBY	10/31/94
260	Dames & Moore, Phase II Remedial Investigation for MOTBY	10/31/94
261	Earth Technology Corp., Report of groundwater Monitoring for Underground Fuel Storage tank adjacent to Bldg. 44C	5/1/86
262	USDOT/FTA/NJT, Bayonne Extension, Hudson-bergen Light Rail Transit System, supplemental Draft EIS	11/1/95
263	Weston/TAT SPCC Compliance Inspection - Desk Review, MOTBY	11/29/84
264	Letter: NJDEP. (Helen chase) to MOTBY Re: Reed Grass process for sludge	3/26/84
265	NJDEP Compliance Evaluation Inspections for NJ0020257 Permit at MOTBY, 1980 - 1983	6/24/80
266	Dames & Moore, Sampling Design Plan (Draft), Remedial Investigation at MOTBY	9/1/86
267	NJ Assembly Environmental Quality Committee, Report on the Status of Cleanup Activities at Military Installations & prior submission to committee by Stephen Luftig of EPA emergency & Remedial Response Division	1/12/88
268	MOTBY, Memorandum for Record Re: PCB spill, Building 105, 9/12/83	9/29/84
269	MOTBY, Letter to NJDEP RE: DRMS Transfer of 150,000 pounds of Contaminated soil from Iceland through MOTBY	3/18/87
270	MOTBY, 1988 Inventory of Federal Hazardous Waste Activities	1/1/88
271	NJDEP Site Inspection (3/4 and 3/5/87) for review of the Sampling Design Plan for MOTBY (photos filed as Ref.718)	3/26/87
272	Star-Ledger, Army and EPA Reach Accord on Waste at Bayonne Facility, December 28, 1988 (RCRA)	12/28/88
273	CDM Federal Programs Corporation, Final HRS Package for MOTBY (6/7/88)	6/7/88

**Table 9-1**  
**LIST OF REFERENCE FILES**

<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
274	Final NJPDES Discharge to Surface Water Permit NJ0020257	5/1/85
275	NJDEP Permit to Alter Tanks at 44E	6/12/84
276	USEPA Environmental Evaluation Report on Emission	4/22/77
277	Hudson Regional Health Commission, Major Point Source Inspection	12/10/79
278	NJDEP Memo regarding Potention Burning of PCB Oil from Brooklyn Navy Yard in MOTBY boiler	5/2/80
279	NJDEP Inspection Report of the Naval Fire Fighting Facility (85/101)	2/9/73
280	APC Stack Log for MOTBY (List of Tanks & boilers), Probably 1983	1/1/83
281	Master Listing of Storage Vessels Greater than 1000 gals at MOTBY	3/2/77
282	MOTBY SPCC/DPCC PLan	4/21/82
283	USEPA Federal Facilities Update Report - CERCLA	8/9/85
284	UST-Related Material - Tank Registrations 12/93 and 12/93 correspondence list of tanks	12/21/93
285	Tank Closure Material RE: 2- 2,000 gal Fuel Oil Tanks at 229H and 229J (1995)	5/30/95
286	NJDEP Hazardous Waste Regulation Program Sampling at Outdoor Drum Storage Pad 1/93 and 4/93	1/13/93
287	NJDEP Spill Reports: 6/22/94 FO # 2 UST at 229J; 1/17/95 FO #2 UST at 53A; 4/11/95 diesel Fuel ; 8/29/95 Hydraulic Oil by Trucks	8/29/95
288	MOTBY (Marengo) letter to NJDEP RE: Soil Removals at Bldg. 53A	10/11/95
289	NJDEP Site Inspection of Tanks at 44C	8/6/93
290	USCOE Application/Permit Material for Debris Removal, Maintenance Dredging and Bulkhead Reconstruction	8/3/94
291	MOTBY Closure Approval application for Abandonment of Tanks at 44C	11/8/93
292	NJDEP Review of Site Assessment Summaries for USTs at MOTBY (Tanks 6-22, 28, 30, 31, 33, and 34)	11/4/93

<p><b>Table 9-1</b></p> <p><b>LIST OF REFERENCE FILES</b></p>		
<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
293	UST Closure Approvals for Tanks 7-15, 28, 29, 31, 33, 34 and 4 Others	7/31/92
294	Moved to 909	
295	Moved to 910	
296	EPA SPCC Inspection of MOTBY	12/7/93
297	NJPDES Draft Permit No. NJ0108251 for the Phragmites Reed Bed Sludge Management System at MOTBY	12/27/95
298	NJ Transit, Hudson-Bergen Light Rail Transit System Remedial Investigation/Remedial Alternatives Analysis, Group 4 Military Ocean Terminal - Bayonne, MOTBY Facility Excerpt, Volume I	2/2/96
299	Middleton, Kathleen, Images of America: Bayonne	3/1/95
300	Empty	
301	Milliken & Michael's Credit Services, MOTBY Adjacent Property Real Property Reports	2/1/96
302	Environmental Risk Information & Imaging Services (ERIIS), MOTBY Adjacent Property State and Federal Database Search Results	12/15/95
303	Ebasco Environmental for MOTBY, Discharge Prevention, Containment, and Countermeasures Plan (DPCC), Discharge Cleanup and Removal Plan (DCR) Plan	1/3/93
304	USEPA Compliance Evaluation & Landban Inspection (CEI/Landban), MOTBY 3/31/89	3/31/89
305	USEPA Compliance Evaluation & Landban Inspection (CEI/Landban), MOTBY 6/8/93	6/8/93
306	Letter from MOTBY DEH to USEPA Region II RE: Hazardous Waste Management and Building 14, including Historical summary	6/18/90
307	Memo from Chris Hajduk, MOTBY DEH RE: Used Oil Burning at MOTBY	10/28/91
308	Memo from MOTBY DEH RE: Followup to 3/88 USEPA CEI Inspection	3/31/88
309	Letter Proposal from Hudson Environmental, Inc. to MOTBY RE: Sampling and Testing of 50 Drums at Building 14	3/9/89



Table 9-1  
LIST OF REFERENCE FILES

File Number	Title	Sort Date
310	1992 Hazardous Waste Report for MOTBY	3/24/93
311	USEPA RCRA Inspection of MOTBY, 3/20/92	3/20/92
312	Letter from MOTBY to Bayonne Hospital with MSDS of Various Chemicals used at MOTBY	
313	USEPA Hazardous Waste Management Inspection at MOTBY, 3/28/88	3/28/88
314	New Jersey Department of Environmental Protection (NJDEP), List of Spills Reported to NJDEP for City of Bayonne, 1986-1996	3/1/96
315	New Jersey Department of Transportation (NJDOT), Right-of-Way Assessment of Route 169, Section 1G, August 1991	8/1/91
316	New Jersey Department of Transportation (NJDOT), Remedial Investigation Report for Route 169, Section 1G, February 1994	2/1/94
317	New Jersey Department of Transportation (NJDOT), Remedial Action Work Plan for Route 169, Section 1G, February 1994	2/1/94
318	Exxon Company USA, Phase IA Remedial Investigation Bayonne Plant, Bayonne New Jersey, December 1995	12/1/95
319	City of Bayonne, Monitoring Well Quarterly Groundwater Analysis Results - Bayonne Landfill, April 1996	4/30/96
320	Galson Consulting, Analysis of Soil and Groundwater Samples Collected at Lots 75 and 85 at the Military Ocean Terminal Bayonne	4/96
<b>MAP FILES</b>		
501	MOTBY Fac. Eng., Underground Utility Maps (by Zone)	
502	MOTBY Fac. Eng., Historical Series of Facility Maps With Lists of Buildings, 1941-1995 (some years missing)	1/1/41
503	MOTBY Fac. Eng., MOTBY Master Plan (Parts 1 & 2)	4/1/74
504	NSDBY Fac. Eng, Electrical Ducts	5/18/43
505	NSDBY Fac Eng., Freshwater Distribution System General Plant	10/27/70

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
506	MOTBY Fac. Eng., Miscellaneous Pollution Abatement Projects	3/8/79
507	NSDBY Fac Eng., AC Electric System General Plan	10/28/70
508	NSDBY Fac Eng., Salt Water Distribution System General Plan	12/5/49
509	MOTBY Fac. Eng., General Tree Cover and Recreation Map	4/30/74
510	MOTBY Fac. Eng., General Electric Map	4/30/74
511	MOTBY Fac. Eng., General Heating Map, MOTBY	4/30/74
512	NSDBY Fac Eng., Electric Manholes and Ducts General Plan	10/28/70
513	MOTBY Fac. Eng., Storm Sewers and Drains, General Plan	6/1/93
514	MOTBY Fac. Eng., Freshwater Distribution System	5/1/93
515	MOTBY Fac. Eng., Sanitary Sewers General Plan	7/1/93
516	NSDBY Fac Eng. Storm Sewers and Drains General Plan	12/24/53
517	MOTBY Fac. Eng. Tenant Activities	8/6/76
518	MOTBY Fac. Eng. Tenant Activities	9/20/79
519	MOTBY Fac. Eng. Location of USTs	5/8/86
520	NSDBY Fac. Eng., Naval Dry Dock, Building Location Plan	10/7/43
521	NSDBY Fac Eng., Location Plan	10/4/41
522	NSDBY Fac. Eng, US Navy Yard, NY Bayonne Annex showing Atlantic Reserve Fleet Berthing Station	2/18/47
523	NSDBY Fac. Eng, Site of Proposed Building on Blocks 82,83,92, 93	11/6/43
524	NSDBY Fac. Eng., Naval Dry Dock Building Location Plan	10/7/42

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
525	MOTBY Fac. Eng., General Site Plan with Mark-up of USTs and ASTs	11/1/94
526	MOTBY Fac. Eng., Map of Wetland Delineation at MOTBY ( See File 38)	1/1/94
527	MOTBY Fac. Eng., Topographic and Environmentally Sensitive Areas Map (See File 39)	1/1/93
528	USDOJ, National Wetlands Inventory Maps for MOTBY Area	
529	MOTBY Fac. Eng., Land Use/Drainage Maps (See File 39)	1/1/93
530	NSDBY Fac. Eng., Foundation Boring Locations and Profiles (3 Sheets)	1/1/41
531	NSDBY Fac. Eng., Additional Test Borings	1/1/45
532	NSDBY Fac. Eng., Fuel Oil Line from Berth N-7 to Bldg. 44-C, Layout Plan & Electrical Details	11/3/52
533	MOTBY Fac. Eng, PCB Replacement Project Maps ( 2 Sheets)	1/1/92
534	City of Bayonne, Map of Bayonne	6/23/41
535	MOTBY Fac. Eng., Map showing Planned Demolitions, Remaining Tenants, Proposed USCG Area, Environmental Hot Spots, UST Spills and Wetlands	1/1/95
536	City of Bayonne City Engineer, Constable Hook Industrial Park, DWG No. 318	1/8/91
537	City of Bayonne Fire Protection Dept., Map of City of Bayonne	1/1/94
538	MOTBY Fac. Eng., Tank Location Plan	5/3/91
539	MOTBY Fac. Eng., Tank Location Plan, Remove and Replace Underground Storage Tanks	6/19/91
540	MOTBY Fac. Eng., Exigent Repair of Fuel Oil Line Plan	6/29/91
541	NSDBY Fac. Eng., Proposed Fuel Oil Line North Bulkhead	9/2/53
542	NSDBY Fac. Eng., Underground Gasoline storage Tanks - 1500 gals. (Bldgs. 15B, 41 & 55)	1/1/63
543	NSDBY Fac. Eng., Permanent Stowage Station for Sludge Oil	8/21/45

<b>Table 9-1</b> <b>LIST OF REFERENCE FILES</b>		
<b>File Number</b>	<b>Title</b>	<b>Sort Date</b>
544	NSDBY Fac. Eng., Underground Gasoline Storage Tank, Salvage School, South of Building 113	9/3/47
545	NSDBY Fac. Eng., Bldg. No. 4 Fumigation chamber Units and General Alterations (preliminary)	5/15/59
546	NSDBY Fac. Eng., Bldg. No. 4 Plans & Details Architectural	6/16/67
547	NSDBY Fac. Eng., Bldg. No. 4 Stock & Aisle Layout Plan	1/1/48
548	NSDBY Fac. Eng., Bldg. No. 12 Stock & Aisle Layout Plan	6/9/48
549	NSDBY Fac. Eng., Bldg. No. 12 Fumigating Vault	8/22/42
550	NSDBY Fac. Eng., Bldg. 13 Battery Charging Equipment	5/22/42
551	NSDBY Fac. Eng., Bldg. 13 Stock & Aisle Layout Plan	6/9/48
552	MOTBY Fac. Eng., Bldg. 13 Railroad Pit	3/22/74
553	NSDBY Fac. Eng., Bldg. 14 Alterations & First Floor Plan Electrical	9/15/66
554	NSDBY Fac. Eng., Tank Foundation - Fuel Oil Tank at Net Storage Bldg. #15	5/13/42
555	NSDBY Fac. Eng., Bldg. 15A Net Depot Heating System	10/17/47
556	NSDBY Fac. Eng., 15A Net Depot, Steel Tank for Preservation Compound	11/16/51
557	NSDBY Fac. Eng., Bldg. 15A Floor Plan and Mezzanines	6/22/67
558	MOTBY Fac. Eng., Renovation of Bldg. 15A- Offices for Hudson Engineering	9/1/81
559	NSDBY Fac. Eng., Bldg. No. 15B Floor Plans & Elevations	6/20/67
560	NSDBY Fac. Eng., Bldg. 32 Rust Removal Room Installation of Two Tanks	11/14/49
561	NSDBY Fac. Eng., Bldg. 32/1 Part Floor Plan East End	4/16/86
562	NSDBY Fac. Eng., Bldg 32 Plan for Corrosion Prevention Unit Room 305-C, First Floor	3/2/44

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
563	NSDBY Fac. Eng., Bldg. 32/1 Slushing Tank for Rust Removal Room	5/11/50
564	NSDBY Fac. Eng., Bldg. 32/1 Proposed Alteration to Preservation Unit	10/19/53
565	MOTBY Fac. Eng., Bldg. 33 Part floor Plan & Section - East End	3/24/61
566	MOTBY Fac. Eng., Bldg. 35 Cold Storage Warehouse Floor Plan	
567	MOTBY Fac. Eng., Bldg. 42/5 proposed Office Furniture Arrangement for CDD & FTD	11/6/74
568	MOTBY Fac. Eng., Bldg. 42/5 Floor Plan West	6/10/74
569	MOTBY Fac. Eng., Bldg. 42/5 Floor Plan East	6/10/74
570	MOTBY Fac. Eng., Bldg. 42/6 Floor Plan West	6/10/74
571	MOTBY Fac. Eng., Bldg. 45 Partial Plan West End	
572	MOTBY Fac. Eng., Bldg. 45 Partial Plan West End	
573	NSDBY Fac. Eng., Bldg. 52B Dispensary Floor Plan	11/30/61
574	NSDBY Fac. Eng., Bldg. 53A Locomotive & Crane Shed	6/19/41
575	NSDBY Fac. Eng., Bldg. 53A Alteration to Repair Pit	12/20/45
576	NSDBY Fac. Eng., Bldg. 72 Area Allocation	7/30/62
577	NSDBY Fac. Eng., Bldg. 72A Laundry & Garage Building	10/25/43
578	NSDBY Fac. Eng., Bldg. 72A Chemical Laboratory Air Conditioning System	5/21/63
579	NSDBY Fac. Eng., Bldg. 72A Chemical Laboratory Installation	10/23/59
580	MOTBY Fac. Eng., Bldg. 82/1 1st Floor Plan East End	3/1/76
581	MOTBY Fac. Eng., Bldg. 82/1 Part Floor Plan West End	10/18/74

<p><b>Table 9-1</b></p> <p><b>LIST OF REFERENCE FILES</b></p>		
File Number	Title	Sort Date
582	MOTBY Fac. Eng., Bldg. 82/2 Second Floor Plan West End	3/1/76
583	MOTBY Fac. Eng., Bldg. 82/2 Second Floor Plan East End	3/1/76
584	NSDBY Fac. Eng., Bldg. 91A Paint Storage & Mixing Areas	
585	NSDBY Fac. Eng., Block 91 Gasoline filling Station for Ship Stores	1/12/50
586	NSDBY Fac. Eng., Bldg. 91D Site Plan & Details for Service Station & Car Wash (Plan Only)	3/22/73
587	NSDBY Fac. Eng., Bldg. 91D Site Plan & Details for Service Station & Car Wash (Plan Only)	
588	NSDBY Fac. Eng., Bldg. 100 Machine & Structural Shop Ground Floor Plan	
589	NSDBY Fac. Eng., Bldg. 101 Sheet Metal Pipe and Electric Shops, First Floor	7/16/42
590	NSDBY Fac. Eng., Bldg. 101 1st and 2nd Floor Part Plan West End	11/13/67
591	MOTBY Fac. Eng., Bldg. 101/1 Pest Control room Existing & Proposed Plans	3/1/76
592	NSDBY Fac. Eng., Bldg. 103, Mill Joiner and Rigger Building	10/17/42
593	NSDBY Fac. Eng., Bldg. 104 Additional Condensate Return Piping	4/21/49
594	NSDBY Fac. Eng., Bldg. 105 North Substation, Plan Elevations & Sections	8/31/42
595	NSDBY Fac. Eng., Bldg. 105 North Substation, First Floor, Basement & Roof Plans	11/9/42
596	NSDBY Fac. Eng., Bldg. 106 Installation of Floodlights (& Grease Rack Area)	6/7/57
597	NSDBY Fac. Eng., Bldg. 106 New Grease Pit to Service Large Buses and Trucks	9/15/49
598	MOTBY Fac. Eng., Bldg. 108, Plans Elevations & Electrical	9/17/70
599	NSDBY Fac. Eng., Bldg. 109 Crane Rail for Ordinance shop	3/5/44
600	NSDBY Fac. Eng., Bldg. 109 Replacement of Blacksteel Pipe	10/19/53

Table 9-1  
LIST OF REFERENCE FILES

File Number	Title	Sort Date
601	NSDBY Fac. Eng., Bldg. 109 Ventilation System for Utilities Room	3/10/52
602	NSDBY Fac. Eng., Bldg. 110 Paint & Oil Storehouse, Plans & Section	2/8/43
603	NSDBY Fac. Eng., Bldg. 113 F.A. Circuit (Transformers)	10/3/57
604	NSDBY Fac. Eng., Bldg. 113 Alteration of Footing & Foundation At Control Station (Elect. Pit)	
605	NSDBY Fac. Eng., Bldg. 115 Paint Storage Shed, Relocation	
606	NSDBY Fac. Eng., Bldg. 120 Wall & Gate for Propane Tank Enclosure	2/13/43
607	NSDBY Fac. Eng., (Bldg. 128) Spray Booth East of Bldg. 106 Electrical Plan	10/3/45
608	MOTBY Fac. Eng., Bldg. 228A Miscellaneous Remodeling Floor Plan & Details	12/17/84
609	NSDBY Fac. Eng., Drydock Utilities	1/17/66
610	NSDBY Fac. Eng., Sanitary Fill Area	4/24/67
611	MOTBY Fac. Eng., NW Corner of Terminal Land Available for Lease	11/4/71
612	NSDBY Fac. Eng., West End of Naval Supply Center, Part Plan	12/29/60
613	NSDBY Fac. Eng., Visitors Parking Area, 32nd St. Gate	12/26/62
614	Purcell Associates, Key Map, City of Bayonne, Hudson County, New Jersey ( Scale: 1" = 800')	1/1/86
<b>PHOTOGRAPH FILES</b>		
701	MOTBY Base Photographer's Files - Historical Montage of Bayonne and Robinson Farm	1/1/35
702	MOTBY Base Photographer's Files - Bayonne Port Terminal	3/1/41
703	MOTBY Base Photographer's Files - U.S Naval Depot and Drydock	8/1/41
704	MOTBY Base Photographer's Files - U.S. Naval Depot and Drydock	3/1/42



Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
705	MOTBY Base Photographer's Files - Naval Supply Depot ( 3 Views)	1/1/65
706	MOTBY Base Photographer's Files - Naval Supply Depot	1/1/66
707	MOTBY Base Photographer's Files - EAMTMTS, Military Ocean Terminal Bayonne ( 2 views)	1/1/67
708	MOTBY Base Photographer's Files - Naval Supply Depot Bayonne	1/1/68
709	MOTBY Base Photographer's Files - MOTBY (5 views)	1/1/73
710	MOTBY Base Photographer's Files - MOTBY (2 views)	1/1/74
711	MOTBY Base Photographer's Files - MOTBY	1/1/75
712	MOTBY Base Photographer's Files - MOTBY (4 views)	1/1/77
713	MOTBY Base Photographer's Files - MOTBY	1/1/78
714	MOTBY Base Photographer's Files - MOTBY ( 3 views)	1/1/83
715	MOTBY Base Photographer's Files - MOTBY	1/1/94
716	MOTBY Base Photographer's Files - MOTBY (Aerial Series)	1/1/92
717	MOTBY Base Photographer's Files - Naval Supply Depot Bayonne (3 views)	1/1/69
718	NJDEP, Photo Log and Photographs from 3/4/87 & 3/5/87 Site Inspection at MOTBY	3/4/87
719	USEPA, EPIC Photographs of MOTBY Used in 1982 Installation Assessment, TS-PIC-0066 (1940,1949,195-1,1954,1959,1961,1966,1969,1974,1975)	2/1/82
720	Unknown Photographer - Photo of Bayonne - American Standard Plant (NW corner of MOTBY)	5/1/65
721	ERIIS - Aerial Photographs of MOTBY, AIC #02-0045707, 1/4/54 & 2/18/54	1/18/54
722	E & E, Inc., Adjacent Properties Site Reconnaissance Photographs, MOTBY Site Visit, 10/30/95 - 11/20/95	
723	E & E, Inc., Facility Site Inspection Photographs, MOTBY Site Visit, 1/22/96 - 1/26/96	

Table 9-1		
LIST OF REFERENCE FILES		
File Number	Title	Sort Date
724	E & E, Inc., Adjacent Properties Site Reconnaissance Photographs, Bayonne Site Visit, 2/7/96 - 2/9/96	
<b>LOGBOOKS AND NOTES</b>		
801	E & E, Inc., Facility Site Inspection Notebooks and Facility Inspection Forms, MOTBY Site Visit, 1/22/96 - 1/26/96	1/22/96
802	E & E, Inc., Adjacent Properties Site Reconnaissance, Logbook, Bayonne Site Visit, 2/7/96 - 2/9/96	2/7/96
803	E & E, Inc., Facility File and Archive Review Logbook, MOTBY Site Visit, 10/30/95 - 11/10/95	10/30/95
804	E & E, Inc., Facility File and Archive Review Logbook, MOTBY Site Visit, 1/15/96 - 1/26/96	1/15/96
805	E & E, Inc., NJDEP File Review Notebook, 2/7/96	2/7/96
<b>GUIDANCE DOCUMENTS</b>		
901	Guidance for EBS and Construction Site Clearance	1/1/89
902	New Jersey Classification Exemption Area (CEA) Regulations [for BCP]	
903	New Jersey Declaration of Environmental Restrictions (DER) Example [for BCP]	1/1/95
904	New Jersey Declaration of Environmental Restrictions (DER) Example [for BCP]	10/1/93
905	NJDEP Proposed Cleanup Standards (Soil, Water, Building, Eco, Etc)	3/1/92
906	NJ Cleanup Standards & MOTBY	1/1/91
907	NJDEP Comments on the Phase II RI Report (6/20/95) and Request for Reclassification of Tidal Water and US Army Center for Preventive Medicine Review (1/5/95)	1/1/95
908	NJDEP GIS Mapping and Digital Data Standards	12/1/94
909	NJDEP Comments File for RI Sampling Plan, Phase I, and Phase II	
910	MOTBY Comments File for RI	1/1/96

Table 9-1

## LIST OF REFERENCE FILES

File Number	Title	Sort Date
911	DOD-EPA-Cal EPA, Fast Track to To FOST: A Guide to Determining if Property is Environmentally Suitable for Transfer, Interim Final	2/1/95
912	DOD, BRAC Cleanup Plan (BCP) Guidebook, Fall 1993	11/1/93
913	Dietrich, G., Kurt Kalie, Woldgang Krauss, Gerold Siedler, General Oceanography, 2nd Edition, translated by Susanne and Hans Ulrich Roll, John Wiley and Sons, New York	1/1/80
914	NOAA, A Summary of Data on Tissue Contamination from the First Three years (1986 - 1988) of the Mussel Watch Project, Noaaa Technical Memorandum NOSOMA 49, Rockville Maryland	8/1/89
915	NOAA, Second Summary of Data on Chemical contaminants in Desiments from the National Status and Trends Program, NOAA Technical Memorandum, NOSOMA 59, Rockville Maryland	4/1/91
916	NYC Dept. of Env. Protection (NYCDEP), New York Harbor Water Quality Survey 1993, New York	1/1/94
917	L.D. Carswell, USGS Water Resources Investigation: Appraisal of Water Resources in the Hackensack River Basin, New Jersey	6/1/76
918	Perlmutter, N.M. and T. Arnow, Ground Water in Bronx, New York and Richmond York, State of New York, Dept. of Conservation, Water Power and Control Commission, Bulletin GS-32	
919	NOAA, Tidal Current Tables 1994, Atlantic Coast of North America, U.S. Dept. of Commerce	12/31/93
920	Van der Leeden, Troise, Todd, Water Encyclopedia 2nd edition, 1990	1/1/90
921	NYCDEP Bureau of Clean Water, Battelle Waste Load Allocation (WLA) Data, not published, available from the Marine Sciences Section, Wards Island, NY, NY 10035	no date
922	Frank J. Pazzaglia, Water Quality Management Memorandum, to Frank Groman, Bureau of Case Management, DHWM, Division of Water Resources, Department of Environmental Protection, Preliminary Evaluation of RI for MOTBY	4/8/87

Table 9-2		
LIST OF INDIVIDUALS INTERVIEWED AT MOTBY		
Date	Name	Notes
<b>GARRISON</b>		
Several	Colonel Pingley	Met with Colonel Pingley to discuss our research activities and interviewed regarding his period at the base in the early 1970s.
Several	Mary Letcher	
Several	Scot Laferte	Interviewed regarding his eight year familiarity with base and community issues.
Several	Mirza Baig, BEC	Discussed EBS scope issues.
January 18, 1996	Helen Johnson	42/2 Archives; interviewed with respect to her and her father's knowledge of the facility.
Several	Mike Marengo	Several interviews throughout the EBS data collection effort. Multiple discussions were held to clarify and facilitate research efforts.
Several	Bill Messer	Multiple discussions to elucidate specific research efforts.
Several	Pat Gannon, Real Property	Several interviews throughout the EBS data collection effort. A number of discussions were held with Ms. Gannon both to research new data and to query or seek confirmation of data identified elsewhere. Notes were maintained in the field logbooks.
Several	Steven Krieg, EMO	Multiple subjects were covered during a series of discussions. Mr. Krieg used to work for DRMO before moving to the EMO. Discussion notes are in the field logbooks.
Several	Leonard Wagner, EMO	Several interviews throughout the EBS data collection effort. Multiple subjects were covered during a series of discussions. Mr. Wagner has worked for the EMO since 1989. Discussion notes are in the field logbooks.
Several	Carl Applequist, EMO	Several interviews throughout the EBS data collection effort. Multiple subjects were discussed with Mr. Applequist who has been working under contract with the EMO for about a year. Notes on the discussions are in the logbooks.
	Pesticide Contractor	Interviewed with respect to ongoing pesticide management activities.
January 22, 1996	Donald Tuscano	STP Operator/Lab Technician (information on STP, septic, DW/STP monitoring) at Building 101
January 25, 1996	Tiney Sales	Interviewed as Jimmy Aiello predecessor and Safety Officer for the Garrison.
January 25, 1996	Chief Raskowski	Fire Chief for the installation, spoke with him on several occasions.
January 25, 1996	Keith Davis	Fireman, interviewed at Building 440.

Table 9-2		
LIST OF INDIVIDUALS INTERVIEWED AT MOTBY		
Date	Name	Notes
January 25, 1996	Bruce Zukowski	Building 45 tenant.
<b>1301st PORT</b>		
Several	Colonel Carmona	Met with Colonel Carmona to present our research needs, and interviewed regarding suitable candidates for follow-on interviews.
January 17, 1996	John Nappie	Retired, now motor pool contractor. Interviewed regarding his experience of various practices at MOTBY.
January 17, 1996	Jimmy Aiello	Safety Officer, 1301st Port
January 17, 1996	Jimmy DeFillipis	Interviewed regarding his 40+ years of experience with activities at MOTBY.
January 17, 1996	Eddie Vozella	Interviewed regarding his 40+ years of experience with landfilling and waste management practices at MOTBY.
January 17, 1996	Ray Niestemski	Interviewed with respect to his 25+ years of experience at MOTBY.
January 26, 1996	Pasquale Barbieri	Retired, now a contractor. Interviewed with respect to his over 45 years of experience as a longshoreman at MOTBY.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
**pending investigation of facility-wide concerns)**

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
1	1.79	1B, 1C, 1D, 1E, 1F, 1G	7	This area was assigned category 7 because of a history of discharges and disposal directly to the sanitary sewer from a variety of sources such as the photolabs. This disposal could have impacted the sewage treatment plant facilities. More information is needed to further characterize the area.
2	0.62	None	7	This area was assigned category 7 because of the possibility of migration from adjacent sites. The area is adjacent to Study Areas 103, 12, and 13 which were assigned category 6.
3	1.05	1A, 106	7	This area was assigned category 7 because of a history of disposal to the sanitary sewer which may have impacted the sump pump and because of the possibility of migration from Study Areas 103, 12, and 13.
4	2.65	None	5 (1.18 acres), 7 (1.47 acres)	This area was assigned category 5 around former Building 4 because of available information on uncontrolled former storage practices. Even though the waste and building have been removed, no confirmatory sampling data has been located. The north bulkhead area was assigned category 7 because of the unknown potential for contamination from a former preservation tank and sandblasting residue found on the ground.
11	3.11	None	5	This area was assigned category 5 because Building 11 was formerly a pesticide storage building. Although the building has been removed, no confirmatory sampling data exists.
12	4.68	12	6	This area was assigned category 6 because of uncontrolled storage of drums in the alcove between Buildings 12 and 22. The drums have been removed but the area has not been characterized. Former pesticide storage in this area has also not been characterized.
13	5.22	13	6	This area was assigned category 6 because of former drum storage on the south side of the building. The drums have been removed, but the area has not been characterized. The possibility for contaminant migration from adjacent areas caused the entire area to be categorized equally.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
14	5.16	14	5	This area was assigned category 5 due to the former large-scale storage of hazardous waste in the late 1980s. Although the building inside area has been remediated and the building fully renovated, no subsurface confirmatory sampling data was located and subsurface sampling may not have been conducted.
15	3.7	15	7	This area was assigned category 7 because of concerns regarding former petroleum storage on the west side, near Buildings 15A and 15B. The only concern for the east side is the potential for migration from adjacent areas.
22	4.58	22, 22A	7	This area was assigned category 7 because of former drum storage in the alcove between Buildings 12 and 22 and a history of photo discharges to the sanitary sewer at the Federal Archive Center Microfilm Laboratory.
23	4.98	23	6	This area was assigned category 6 because of the need for environmental characterization due to the extensive use of the building for hazardous material storage over the past 54 years.
24	5.22	24	7	This area was assigned category 7 because the possibility of migration from Area 23 is uncharacterized.
25	3.99	25	1	This area was assigned category 1 because no environmental concerns were identified and the possibility of migration as a result of environmental concerns from adjacent areas is considered low.
31	7.24	None	5	This area was assigned category 5 because environmental sampling was not performed after the building was demolished. The concerns are former pesticide storage in the building, and the historic storage of explosives in 1939-1941.
32	4.65	32	6	This area was assigned category 6 because there is a history of uncontrolled drum storage, and there was a rust removal/preservation room in the building.
33	4.78	33	6	This area was assigned category 6 because the area has an 8-year history of paint and oil storage and has not been characterized.
34	5.04	34	7	This area was assigned category 7 because of a concern regarding possible migration from Study Area 44.



Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
**(All parcels are officially CERFA category 7**  
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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
35	5.03	35	5 (1.24 acres), 6 (3.80 acres)	Most of this area was assigned category 6 because of a history of uncharacterized hazardous material, hazardous waste, and petroleum storage and releases. However, the northwestern edge was assigned category 5 because of concerns regarding the fuel pipeline associated with Study Area 44 that have been partially remediated.
41	3.59	41	7	This area was assigned category 7 because no removal or confirmatory sampling was found concerning identified hazardous material storage.
42	4.6	42, 42B	7	This area was assigned category 7 because of the concerns raised about the possible sanitary discharges from film processing laboratories on 42-2, 42-4, 42-5, and 42-6 and residual concerns about hazmat and hazwaste handling at the former printing plant and solvent room on 42-5.
43	4.55	43	7	This area was assigned category 7 because of a battery spill at an unknown location somewhere in the building. The spill was cleaned up, but no confirmatory data could be found. There is also a concern over migration from adjacent areas, particularly Study Area 44.
44	5.14	44A, 44B, 44C, 44D, 44F	5	This area was assigned category 5 because of the extensive history of petroleum storage and releases that have been documented as impacting most of the area. Remedial activity has been conducted and is underway in regards to some of the identified concerns.
45	5.46	45	5	This area was assigned category 5 because of storage and disposal activities that have historically occurred here, some of which have been remediated. There is also a capped acid pit which was the subject of an RI investigation (RI site 5), and may require further investigation or remediation.
51	3.64	51	1 (2.85 acres), 6 (0.79 acres)	This area was assigned category 6 on the western side because of a history of petroleum storage and releases. The remainder of the area was assigned 1 because no environmental problems could be identified.
52	4.63	52A, 52B, 52D, 52E	7	This area was assigned category 7 because of potential discharges to the sanitary sewer at the X-ray laboratory in 52B and potential migration, in addition to potential migration from Area 53.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

(All parcels are officially CERFA category 7  
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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
53	4.55	53, 53A, 53B	5 (2.67 acres), 7 (1.88 acres)	The eastern portion of this area was assigned category 5 because investigations have indicated that further contamination is possible, but some removals have occurred. The western half of the study area was assigned category 7 because of the potential for contaminant migration from Study Area 63.
54	5.7	54	7	This area was assigned category 7 because of a migration concern from Study Areas 44 and 53.
55	5.79	None	1 (2.85 acres), 5 (2.95 acres)	This area was assigned category 5 on the eastern half because of a large PCB spill which was cleaned up, but for which no subsequent confirmatory sampling data could be found. No environmental concerns were identified for the western half which was assigned category 1.
61	2.38	61B, 61C, 61D, 61E	4 (1.10 acres), 6 (1.28 acres)	This area was assigned category 6 on the eastern half because confirmatory sampling needs to be collected for the substation. The western half was assigned category 4 because of an UST that has been removed.
62	5.23	62	1	This area was assigned category 1 because no environmental concerns were identified for the area and the likelihood of migration from adjoining study areas is low.
63	4.09	63	6	This area was assigned category 6 because it is a former storage area but the area has not been characterized.
64	5.29	64	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
65	5.4	None	4	This area was assigned category 4 because of remediated petroleum releases.
71	3.16	71A	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
72	4.43	72, 72A, 72B, 72C	4 (3.54 acres), 7 (0.89 acres)	This area was assigned category 4 around Building 72 because of a removed UST. The western end of the area was assigned category 7 because of uncharacterized hazardous material storage at Building 72A.

### Table 6-3

## SECONDARY CATEGORIZATION OF STUDY AREAS

(All parcels are officially CERFA category 7

pending investigation of facility-wide concerns)

Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
73	4.25	73, 73A	5 (1.04 acres), 7 (3.21 acres)	The western part of this area was assigned category 5 because of the former and present storage of hazardous material. The remainder of the area is categorized a 7 due to a potential for migration from the western area.
74	5.49	74	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
75	5.34	75	1 (4.59 acres), 7 (0.74 acres)	Most of this area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low. The exception is the western portion, which was assigned category 7 because of the possibility for contaminant migration from Study Area 85.
82	4.23	82	7	This area was assigned category 7 because of an unknown storage tank identified for the study area. If details for the tank could be identified, the study area would likely qualify for category 2.
83	3.97	83, 83A, 83B, 83C, 83D	7	This area was assigned category 7 because of concerns regarding ASTs and other historic general fueling concerns. The western part of the area qualified for category 7 because of potential of migration from the fueling area.
84	4.26	84	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
85	4.89	85	5 (3.86 acres), 7 (1.03 acres)	The former fire fighting area was assigned category 5 pending investigation of the 1989 kerosene spill, the former landing craft area, and resampling of the two USCG wells. The remainder of the area was categorized a 7 pending completion of the investigation of the fire training area.
RCY	41.39	Railroad Classification Yard, 201	7	This area was assigned category 7 because little information was located on historic activities, housekeeping, or other problems in the railroad classification yard and along the unloading platforms.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

(All parcels are officially CERFA category 7  
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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
91	2.63	91A, 91B, 91C, 91D, 91E	5 (1.73 acres), 7 (0.90 acres)	The eastern part of this area around the gas station was assigned category 5 because of the extensive contamination that was found during investigation and removal of the former underground storage tanks and the possibility for further contamination. The western part of the area was assigned category 7 because no information was located concerning the former paint storage building.
92	4.87	92, 92A, 92B, 92C	7	This area was assigned category 7 because of the potential for migration from adjoining Areas 91 and 203.
93	4.22	93	7	This area was assigned category 7 because of the possibility of historic use by DPDO and the potential for migration from the former DRMO yard in 203 and 204.
94	4.47	94	1 (3.05 acres), 7 (1.42 acres)	Most of this area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low. However, the western third of this area was assigned category 7 due to the potential for migration from the former DRMO yard in 203 and 204.
95	5.29	95	7	This area was assigned category 7 because of the potential for migration from adjoining Areas 203/204.
101	8.55	100, 101, 105	5 (1.69 acres), 7 (6.86 acres)	The Building 100 and 101 areas were assigned category 7 because of the numerous unknowns associated with historic activities at the various buildings. The area around Building 105 was assigned Category 5 in light of the ongoing remedial work at the site.
100N	9.13	None	5 (1.42 acres), 7 (7.71 acres)	This area was assigned category 5 along the very western edge because of USTs associated with B106, which are the subject of ongoing remedial effort. The rest of the study area was assigned category 7 because of unknown environmental implications associated with the Navy Test Area and Building 113.
102	4.48	102, 102A	7	This area was assigned category 7 because of migration concerns from adjoining areas 4, 100N, and 103.
103	2.33	103, 104	6	This area was assigned category 6 because of former uncontrolled indoor and outdoor storage and the lack of environmental investigation information for the study area.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**  
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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
108	4.5	108, 110, 111	7	This area was assigned category 7 because of the B108 substation; a history of paint and oil storage at B110; and current hazardous waste storage at B111.
100DD	9.36	122, 132	7	This area was assigned category 7 because of data gaps concerning sludge testing and the pumpwell sump. Note: flushing of the dry dock is the reason Study Area NY3 was assigned category 7 due to the potential for residual contaminated sediment outside the caisson.
100S	7.08	136	5 (1.73 acres), 7 (5.35 acres)	This area was assigned category 5 along the eastern edge because while an investigation of the area has been conducted, further work is likely to be needed around the B130 and B134 tanks. The western edge is considered a 7, because of the potential for migration from either the tanks or Study Area 108.
100P	2.77	None	1 (1.37 acres), 7 (1.40 acres)	This area was assigned category 7 along the northern edge because a concern exists about possible migration from 103. The southern portion has no environmental concerns, and was assigned category 1.
201	2.46	201A	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
202	4.6	202	7	This area was assigned category 7 because of migration concerns from the former DRMO area (Lots 203, 204).
203	4.25	203, 222A	5	This area was assigned category 5 because it is the subject of ongoing remedial effort as part of RI site 9.
204	4.59	204, 204A, 204B	5	This area was assigned category 5 because it is the subject of ongoing remedial effort as part of RI sites 4 and 9.
205	6.25	205	7	This area was assigned category 7 because of the potential for migration from the landfill and Study Areas 203 and 204. There are also uncharacterized concerns associated with former burning trenches, a burning bin and the tepee incinerator.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
211	2.48	211A	1 (1.26 acres), 7 (1.22 acres)	This area was assigned category 1 on the eastern side because the only environmental concern identified was a 275 gallon aboveground storage tank for fuel oil that is located within an enclosure. This area was assigned category 7 on the western side because of the potential for migration from adjoining Area 222.
212	4.41	212	7	This area was assigned category 7 because of migration concerns from RI site 2 (lot 222); RI site 1 (landfill); and RI sites 4 and 9 (DRMO lots 203 and 204).
LF	29.22	LF	5 (18.25 acres), 7 (10.97 acres)	The identified landfill area was assigned category 5 because of the ongoing remedial effort of this site as RI site 1. A part of the area was assigned category 7 because of the unknown potential for migration of contamination from the landfill.
221	6.27	221, 221A, 221B, 221C	7	This area was assigned category 7 due to a NJDEP concern regarding potential aerial fallout from former burning activities at LOT 222.
222	4.33	None	5 (1.90 acres), 7 (2.43 acres)	The identified former navy storage area was assigned category 5 because of the ongoing remedial effort at the site as RI site 2. The remainder of the area was assigned a 7 because of a potential for migration from the storage area or the landfill.
LRP	14.2	Main Gate Area, 84A, 228A-F, 229H, 229J	5	The area was assigned category 5 because investigations associated with tank removals and the NJ Transit construction effort have indicated the possibility of groundwater and subsurface soil contamination. Off-site investigation by NJDOT has also indicated the potential for migration of contamination from off site to on site and/or on site to off site. An additional concern is the possible discharge of photo wastes to the sanitary sewer. Some remedial efforts (UST removals) have been conducted at the site.
GBV	11.75	251AC, 252AB, 253AB, 254AB, 229A-B, 229E-F	5 (2.32 acres), 7 (9.43 acres)	The area around 254AB was assigned category 5 because of a history of releases and contamination concerns related to the removed USTs, some of which have been remediated. All other areas were assigned category 7 because of the possibility for contaminant migration from adjoining areas and off-site property.
230	0.79	None	7	This area was assigned category 7 because of a report of contaminated backfill used in the vicinity of the 40th St. Gate and potential for migration from Highway 169.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
232	5.67	232, 232A	7	This area was assigned category 7 because of a concern that landfill activities in the LF study area may not be fully delineated or characterized.
234	2.03	234A	7	This area was assigned category 7 because of the potential for migration of contamination from Route 169.
235	2.56	235A, 235B, 235C	7	This area was assigned category 7 because of the potential for migration from Route 169.
236	4.85	None	1	This area was assigned category 1 because the only environmental concern identified was a septic tank and line used for domestic sewage from the residence at 234A and the former trailers (236A-D) and because the potential for migration from adjoining sites is considered low.
237	2.98	NYCOE Trailers	1	This area was assigned category 1 because no environmental concerns could be identified and because the potential for migration from adjoining sites is considered low.
FILL	18.9	None	7	This area was assigned category 7, pending final delineation and characterization of the landfill. An additional concern is the proximity of this study area to the burning trenches, burning bin, and the tepee incinerator in 205.
NY1	41.74	86A - C, North Shoreline	7	This area was assigned category 7 because of migration concerns from the Former Fire Training Area (RI site 8), the burning trenches, the landfill (RI site 1), and DRMO (RI sites 4, 9).
NY2	64.46	North Berths	5	This area was assigned category 5 because of numerous spills for which spill containment and remediation activities occurred, but for which complete characterization of residual contamination has not been conducted.
NY3	4.12	East Berths	7	This area was assigned category 7 because dry dock sediments potentially containing unknown contaminants were flushed, accidentally and intentionally, into this area. No characterization of this area for this concern has been conducted.
NY4	55.75	South Berths	6	This area was assigned category 6 because at least one spill was recorded at the south berths. Other spills are likely over the 57 years of use. There is also a concern of contamination as a result of spills at Constable Hook.

Table 6-3

**SECONDARY CATEGORIZATION OF STUDY AREAS**

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Study Area	Area (acres)	Present Facilities within Study Area	Category	Secondary Category Rationalization
NY5	84.68	South Shoreline	6 (72.11 acres), 7 (12.57 acres)	The tidal portion of this study area was assigned category 6 because of the potential for contaminant migration from the Bayonne Landfill and the potential residual impact of recorded spills at Constable Hook. The onshore areas were assigned category 7 because of the potential for migration from the RCY.

Note: The total acreage included in these study areas is 677.98 acres, based on EBS mapping. This information has not yet been reconciled with the area of 722 acres found in the deed descriptions. The likely discrepancy is in the water boundaries of MOTBY.